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Labour of love

*How we pay for software
isn't just about money*

SOFTWARE SUBSCRIPTIONS are like Marmite: heavily marketed but on closer inspection they smell funny. No, I'm just kidding. They divide people into lovers and haters. That's certainly been Adobe's experience since it announced that the Creative Cloud monthly payment model, which it introduced last year, would be the only way to buy the next generation of its photo, video, web and interactive design apps.

More than half a million customers have already signed up for Creative Cloud of their own volition, so it can hardly be described as unpopular. But you'd never guess that from the reactions posted online by outraged users. Adobe was abandoning the faithful; Adobe was only interested in money; Adobe wanted to lock everybody in and throw away the key; Adobe would sell our identities to the FBI/CIA/KGB/B&Q/LOL; Adobe was Satan; Adobe was Google; Adobe was Apple. And these were just from people who'd seen the headline on CNET – the ones who actually owned Adobe products were *really* annoyed.

In reality, the arguments for and against subscriptions are pretty finely balanced. There's something reassuring about knowing that once you've laid down the dauntingly large amount of cash required to buy Creative Suite outright, it'll be there on your hard disk as long as you need it; next year, you can upgrade or stick with what you've got. But not upgrading is only feasible for so long. It's easier at first to sign up for a few quid a month to cover everything, but hard to shift the feeling you're a hostage to fortune: if, later on, you're no longer able to pay, your apps will disappear.

There are also arguments about the relative merits of installing one upgrade every year or two, having waited for bugs to be squashed, or letting your apps update continuously. And some people's internet makes them want software in a box... But what really struck me about the Creative Cloud debate wasn't the case for or against; it was the fact that customers were so passionate in their feelings.

It's only software, after all. But to us, it isn't, is it? That's what's so wonderful and fascinating about reporting on technology in the creative industries. These products are our tools. And like any craftsman's tools, they're beautiful as well as functional in themselves, not only enabling our work but reflecting and enhancing it; connecting us physically and mentally to the materials we transform and the aesthetic that guides that transformation.

When frustration strikes, it helps to remember, I think, that the toolmakers are also craftsmen. The most convincing argument I've seen for Creative Cloud came from Adobe's John Nack. Blogging on this, he didn't pretend it was all about the users. It made sense, he explained, for the developers. Freeing them from the treadmill of rushing out features to an arbitrary upgrade deadline, then waiting two years to resuscitate the bits that missed it, would change the psychology of the teams – and so the products – for the better. 'Evolve... Respond... Don't worry so much about whizzy features. We don't need to force them in.'

If this really is a way of letting the toolmakers focus on the tools, I'm all for it. But I'd love to hear what you think. ■

Contents

'How come the Calendar app icon shows the correct date, but the clock icon is forever stuck on 10:15?' → 58



COVER STORY Adobe explodes

Not sure if this one is serendipity, great minds thinking alike, or stating the bleeding obvious. We spent a while looking for a graphical concept to express how Adobe's Creative Cloud would detonate the pro software market. In the end, Adobe's own promo graphic did it best.

Hats off to them not only for a great piece of artwork, but for not shying away from expressing how radical this move is. You can read all about it on pp20-39. Yep, that's 20 pages. And we haven't even reviewed half of the apps yet. Don't you wish your other magazine was in-depth like us?

**OMG
THEY DID
NOT OMG
THEY DID
OMG.OMG.**

Adobe springs the trap → 20

PRAKTIK HOW-TO BY PROS FOR PROS

- 54 Portfolio**
Ricardo Bessa
- 58 Your mileage may vary**
Guest columnist Daniel Benneworth-Gray obsesses over Apple product niggles
- 60 Graphic design**
Steve Caplin wrestles with letters that refuse to align
- 64 Design practice**
Keith Martin on font identification and other guilty pleasures
- 67 Videography**
It's NAB time, so we find **Will Head** drooling over the latest kit
- 70 Photography**
Thieves' paradise? **Dave Stevenson** rails against the new copyright act
- 72 iWork Pro**
Tom Gorham keeps up with Numbers turning tables
- 76 STEP BY STEP**
Create interactive PDF forms in PDFpenPro with Mark Hattersley
- 78 Q&A**
Mac and iOS support from Howard Oakley
The long view
Make no mistake
- 81 Primer**
Do your numbers add up? Error detection and correction in data and derived calculations



- 8 28 days**
The tangled tale of Apple's tax + Tongue in cheek in guy in space + LulzSec sentenced + Yahoo! bounces + Napoleon + Bacon

PRODUKT

- 86 Roundup MacBook bags**
- 92 Reviews**
- 92 Wacom Cintiq 13HD
- 96 KEF X300A
- 97 HP LaserJet Pro M276n
- 98 LaCie Porsche Design Slim SSD P'9223 120GB
- 99 Urbanears Slussen
- 100 Fujifilm XF1
- 104 PDFpenPro 6
- 106 iGrand Piano
- 018 Foldify
- 110 Boxshot 4
- 111 Reason 7
- 112 Anomaly 2
- 113 Star Command



**How to put
all your
media
in one box
(and get it
out again)** → 42

- 116 Apple Guide**
The Mac and iOS ranges explained
- 128 Inbox**
and Desk of the Month
- 130 Last word**



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28 days

‘We pay all the taxes we owe – every single dollar’



'This dramatic reshaping of copyright law will have huge ramifications for photographers' → 70

US senators want to see the money – and UK could be next

APPLE'S TIM COOK WAS grilled by a committee of US senators in May over allegations that the company had 'sought the Holy Grail of tax avoidance.' The CEO, who took over the post from Steve Jobs in August 2011, was called in by the permanent subcommittee on investigations, chaired by Democrat Carl Levin, to explain the international structures that enabled the highly profitable maker of the iPhone and iPad to pay less than a billion dollars in tax outside the US last year, despite amassing more than \$150bn in cash even after paying out billions in dividends.

Asked whether the company's behaviour was fair, Cook replied: 'Honestly speaking I don't see it as unfair. I am not an unfair person... so I wouldn't preside over that.' And he insisted: 'We pay all the taxes we owe – every single dollar.' But senator John McCain said that, despite 'the admiration we hold for Apple', it was 'completely outrageous' that the company had avoided paying taxes on what he said was \$44bn of income over the past six years. 'Our military cannot afford [corporate tax avoidance], our economy can not endure it, and the American people will not tolerate it,' he continued. Levin later added: 'No company should be able to determine how much tax to pay.'

Within the US, Apple is now said to be the largest single taxpayer, contributing a dollar of every \$40 the US Treasury collects in income taxes – a total of \$6bn a year and rising. It might seem odd in that case that lawmakers would be concerned – but the savings from its tax avoidance practices are just as mind-boggling. A recently announced scheme to borrow money rather than repatriate it from overseas subsidiaries, for example, is estimated to work out \$9bn cheaper than paying tax on the sum in the US, according to the Financial Times.

Much of the hearing revolved around Apple's use of three subsidiaries based in Ireland but not 'resident' in any country for

tax purposes, a concept several senators made a point of failing to understand. One of those subsidiaries, Apple Operations International (AOI), had \$30bn allocated to it over the last five years, but hadn't filed a single tax return in that time, confirmed Apple's head of tax, Phillip Bullock.

Quizzed on the purpose of this entity – other than to avoid tax by arbitrarily shuffling cash around – Tim Cook repeatedly pointed out that the setup had been in place since 1980. This was four years before the introduction of the Macintosh, at a time when Apple was still a relatively small firm. The Irish company had built up skills and expertise relevant to the European and international markets, said Cook, and was vital to Apple's operations. Almost in the same breath, however, he explained that it was nothing more than a holding company whose function was to handle sales revenue 'on which we already paid taxes'. Citing double taxation is a typical apologia for tax avoidance arrangements, though in reality more than one tax is routinely paid on the same income.

IN A STATEMENT made public in advance of the hearing, Apple said that during the lean years of the 1990s the Irish subsidiaries had helped fund research and development, and saw no return, since Apple was making losses. The Irish subsidiaries employed some 4,000 people and the cost-sharing arrangement helped fund the salaries of its US employees. Cook confirmed that the only tax the company does pay in Ireland, on the interest on the cash it keeps there, was at a peppercorn rate of 2%, negotiated with the Republic's government.

Apple nonetheless made the point that it didn't use 'gimmicks' such as tax havens in the Caribbean – a claim quickly seized upon by commentators, who thought the schemes the company did use sounded more than a little gimmicky. Independent tax professor Richard Harvey told the hearing that Apple's arrangements were 'probably legal' and it could have been much more aggressive, but balked at the denial of gimmicks: 'I nearly fell off my chair when I read that.'

A key point in Cook's testimony, and one to which more than one Republican committee member appeared amenable, was a →

'Honestly speaking I don't see it as unfair. I am not an unfair person so I wouldn't preside over that'

APPLE TAX → call for the US government to provide domestically owned multinational companies with an incentive to repatriate their overseas earnings. When asked how much tax they should be invited to pay to make it worth their while, Cook stressed that it was 'not zero' but should be 'in single digits.' The rate is currently 35%.

SENATOR RAND PAUL, whose father ran for the presidency in 2012, told his colleagues: 'Money goes where it's welcome... We're chasing people away.' Paul, Levin and McCain clashed when Paul accused Levin of bullying Apple, something McCain said he found 'offensive.' McCain asked Cook if he felt he'd been bullied or had been dragged to the hearing. 'I didn't get dragged here, sir,' said Cook, adding that he was happy to be present. He looked less happy when McCain closed his own questioning with an awkward quip about the hassle of updating apps on his iPhone, to which Cook responded with equally awkward laughter. The questioning itself, however, seemed not to ruffle the mild-mannered CEO.

Asked by Democratic senator Claire McCaskill what Apple could gain by moving its US operations offshore, however, Cook became almost emotional. 'We're an American company. We're proud to be an American company. We love it here. It's who we are as people.' As for moving abroad, 'It has never entered my mind. I have a wild imagination, and it's beyond it.'

While defending Apple's current tax position, Cook was relaxed about the possibility of reforms that might result in the company paying more. Apple proposed simplifying the corporate tax system by ending 'tax expenditures', the complex web of exemptions,

deductions and credits used by governments to manipulate the economy and facilitate business. Yet at the same time Cook was arguing for an enormous tax break, slashing the rate on repatriated profits, on the basis that 'it would create jobs and investment'. Prompted by the business-friendly Republican senator Kelly Ayotte, Cook even blurted 'All ships rise with the tide,' a phrase reminiscent of Reaganomics.

Towards the end of the hearing, chairman Levin became more combative, attempting to undermine Cook's deliberately unconfessional stance by suggesting he was holding the government to ransom. 'Of course you can bring your profits home, \$100bn is stashed away [in Ireland]... You can bring it home, you just have to pay the tax on it. Is it true that you said you would not bring that money home at [the current] tax rates?' But Oppenheimer intervened to object: 'We don't agree with your characterisation... We have not changed things since 1980.'

APPLE IS NOT the only major tech firm whose tax is under scrutiny. Days earlier, Google's head of northern Europe, Matt Brittin, had faced tetchy questioning from the House of Commons' public accounts committee, led by Labour MP Margaret Hodge, about arrangements that enabled it to pay tax adding up to less than one thousandth of its UK sales revenue in 2012.

'You are a company that says you "do no evil"', misquoted Hodge, 'and I think that you do do evil.' A key element of the company's sleight of hand was that staff based in the UK and selling goods to UK customers were not deemed to have 'closed' sales; offshore subsidiaries were actually doing the selling. A former Google employee, Barney Jones,

'\$100bn is stashed away. Of course you can bring your profit home. You just have to pay the tax on it'

told the Sunday Times Google had 'pulled the wool over the eyes of HMRC'.

Eric Schmidt, Google's executive chairman, is an advisor to the prime minister, David Cameron, and has robustly defended the company's practices. But after the leader of the opposition, Ed Miliband, said it was 'wrong' that Google went to 'extraordinary lengths to avoid paying its taxes', the deputy prime minister, Nick Clegg, said he had raised the issue with Schmidt at a planned meeting in May. Schmidt responded by saying Google was open to tax reform and would never abandon the UK for tax reasons because 'we love you guys too much'. ■



Punt of the Month

'APPLE'S IWATCH IS on its way, with trial production about to get underway at Foxconn. That, at least, is the story from a source which even AppleInsider describes as having 'a hit-or-miss track record.' Step forward Taiwan's Economic Daily News.

'The publication claims that Apple is testing OLED displays for its anticipated smart watch. The company allegedly tested 1.8in panels, but felt they were too big, prompting development to go smaller with 1.5in displays,' said AppleInsider.

'In a second report, the Daily News claims that Foxconn, Apple's longtime manufacturing partner, has already received orders for an "iWatch." However, the initial production run is said to be for no more than a thousand units... a "small-scale trial."

Before you get too excited, AppleInsider has a big pin with which it would like to burst your bubble. 'It should be noted that rumours for years have claimed that Apple is interested in OLED displays, but to date the company has never used the display technology in any of its devices.'

But wait! 'OLED screens could, however, be an optimal choice for wearable technology because of their low power consumption levels.' So, like we said, iWatch in September. Nailed. On. Certainty.



■ **See no evil...**
Cook (centre) was joined on the witness stand by chief financial officer Peter Oppenheimer and head of tax Phillip Bullock



→ **Flare for music**
 Cmdr Hadfield's performance was either genius, or a huge joke on us all by JJ Abrams

iPad owner records song

APPLE USER CHRIS Hadfield turned to GarageBand on his iPad to record his own version of David Bowie's 1969 classic, *Space Oddity*. The middle-aged engineer, originally from Canada, had gained followers on Twitter when he posted snaps from a work trip, and decided to throw his weight behind a project to sign off in style before jetting home. Friends helped the keen amateur by laying down instrumental parts while he recorded his vocal remotely, accompanying himself on a borrowed guitar. He also filmed himself with his favourite camera, then sent back the files on email.

But the part-time strummer's son revealed on internet forum Reddit that the project nearly fell foul of copyright laws. Expatriate Evan, described as an 'internet janitor', said organising permissions was 'the hardest part' and took 'literally months. There was no way to know whether or not Bowie would even work out.'

Hadfield must have been delighted when superstar David, also known as Ziggy, tweeted in praise of the track. But the experienced traveller didn't rest on his laurels and was soon globe-trotting again – just days later he was spotted parachuting in Kazakhstan. ▣



WE'VE ALL HEARD the announcement at the start of a flight telling us to switch off our mobile phones or put them in Airplane mode (who's bright idea was it to name that after a Leslie Neilsen disaster movie?). And most of us tut and sigh and do as we're asked, all the while making it clear we think the whole thing is pointless.

After all, if a phone could really interfere with an aircraft's instrumentation and bring about dire consequences, we wouldn't be allowed to take them on in the first place, would we? Would we?

Apparently we would, and those of us who are sceptical about the risks of electromagnetic interference might need to think again, if a recent story on Cult of Mac (cultofmac.com) is true. If.

'Wireless interference from an iPhone has been blamed for disrupting the compasses on a regional airliner and sending pilots several miles off course,' opened Cult of Mac's story. Anything, one surmises, could have happened, but on this occasion armageddon was averted and 'the issue was resolved when a flight attendant asked a passenger to turn their iPhone off.' Phew.

So, um, how do we know it was the iPhone's fault? "The timing of the cellphone being turned off coincided with the moment where our heading problem was solved," the unidentified co-pilot told NASA's Aviation Safety Reporting System.

We can't help but imagine the scene. 'Something's interfering with the avionics!' 'OMG! What is it?' 'It's a combination of electronic navigation and communication systems, but that's not important right now.'w



← **Party's over**
LulzSec's logo exuded the insouciance of the untouchable, but its anonymous members were betrayed by an informant after carrying out a series of pointless and destructive attacks

No more lulz as website attackers are sentenced

FOUR BRITISH MEMBERS of the hacker group LulzSec have been sentenced for their parts in the hacking of websites belonging to the NHS, the Serious Organised Crime Agency, News International and others. The group was also involved in hacking the websites of Sony International, the CIA and the FBI.

Ryan Cleary, 21, from Essex had admitted six offences under the Computer Misuse Act (1990), including hacking into Pentagon computers, and was sentenced to two years and eight months. Cleary was indicted last June in the US for an attack on Sony's website, but US authorities were content to allow him to be tried in the UK. Initially released on bail, Cleary was committed to prison in March 2012 after exchanging emails with Hector 'Sabu' Monsegur, a fellow hacker who was acting as an FBI informant. Cleary's bail conditions prohibited use of the internet.

Jake Davis, 20, from Lerwick was ordered to serve 24 months in a young offenders' institution. Under the name Topiary, he had publicised LulzSec's activities, and was also indicted by US authorities last year.

Ryan Ackroyd, 26, a former soldier from South Yorkshire, was given 30 months, having pleaded guilty to one charge of carrying out an unauthorised act to impair the use of a computer. Mustafa Al-Bassam, 18,

from London, was sentenced to 20 months suspended for two years and 300 hours of community work. Bassam and Davis had pleaded to attacks on SOCA and the CIA.

Judge Deborah Taylor at Southwark Crown Court told the defendants what they considered a 'cyber game' had very real consequences and said that some of their taunting of victims made 'chilling reading.'

'You cared nothing for the privacy of others but did everything you could to hide your own identities while seeking publicity,' she said. LulzSec posted stolen data on file-sharing sites and carried out distributed denial of service (DDoS) attacks. Prosecutors claimed its activities cost victims millions of dollars and left millions at risk of crime.

The sentences are the longest ever given under the Act. A fifth member of the group, known as Avunit, was never identified and has been silent since October 2012. ■

'You cared nothing for the privacy of others but did everything to hide your own identities'

Yahoo! buys Tumblr, relaunches Flickr, is generally awesome; tech industry is confused

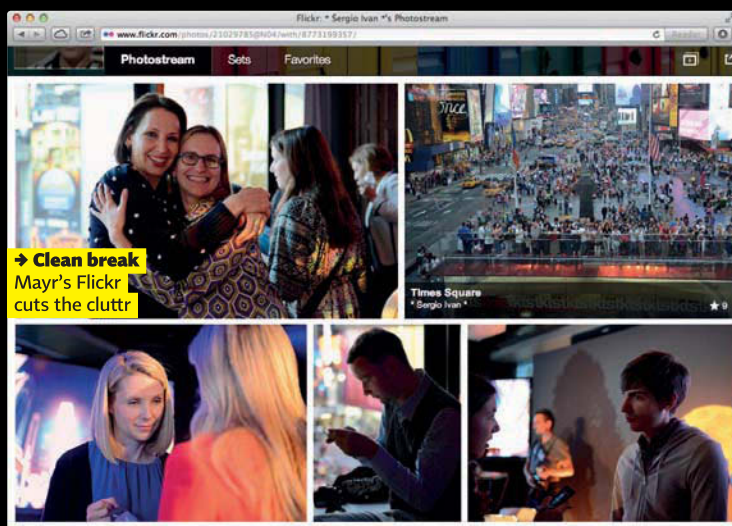
YAHOO!, THE BORING and incompetent search-and-whatever company that everyone wrote off longer ago than they can search tweets back to, has unexpectedly bounced back to the forefront of the internet's consciousness after a one-two punch of credible, interesting and relevant moves.

In mid-May, rumours emerged that Yahoo! was considering paying \$1.1bn for Tumblr, the popular but not profitable microblogging platform known for its shoe-gazing, specialist porn and being based in New York, which tech companies aren't. Within days, CEO Marissa Mayer, the former Google executive who took up the post in July 2012 while seven months pregnant, not only confirmed the acquisition, widely praised as a foothold in the youth market for the dusty brand, but unveiled a dramatically confident redesign of Flickr, the stagnant photo sharing service acquired by the company on 20 March 2005 and last updated around 21 March 2005.

Revealing the developments to a select audience in a room overlooking New York's Times Square, Mayer went on to announce that the company was taking over four floors of the building that formerly housed the New York Times, and produced New York mayor Michael Bloomberg to bless the deal. Short of climbing on a unicorn and telnetting into Mordor, it's hard to know how any CEO could have impressed the industry more.

Tumblr founder (oh come on, it's irresistible) David Karp promised users he was staying with the company and it wouldn't be 'turning purple', a reference to Yahoo!'s corporate culture. The 26-year-old, who will make an estimated \$190m from the deal after capital gains taxes, closed his official statement 'F— yeah.' Mayer, for her part, vowed 'not to screw it up'.

Flickr users now get 1TB of storage space free of charge, but will see ads unless they pay \$50 per year to remove them. Pro accounts are no longer offered, though existing subscribers can keep theirs. Mayer drew scorn when a script fumble resulted in her suggesting this was because there was now 'no such thing as professional photographers', but it turned out she just meant everyone could take photos, or something. ■



It's codenamed 'Napoleon'... because it's a short ruler

ADOBE HAS PREVIEWED its first ever hardware products, a pair of input devices that promise innovative ways to interact with a multi-touch screen. Demonstrated in an online video, the stylus and ruler are inspired by and connect with the company's Creative Cloud service. The stylus, known as Project Mighty (Adobe apparently having forgotten Apple has been making input devices under the Mighty designation since 2005), is pressure-sensitive and can be distinguished from fingers by its companion app, based on Adobe Ideas, allowing a more sophisticated range of gestures to be recognised. The ruler, Project Napoleon, triggers the display of interactive guides when placed on the screen, helping the user to draw precise lines and shapes freehand. Both devices communicate with the tablet via Bluetooth Low Energy. They're not in production, but Adobe seems serious about developing them and related hardware concepts. ■



→ Six degrees?

Kevin Bacon, who stars in EE'S ads, is said to be connected to everyone in Hollywood, but not by having his phone records aggregated

Polling firm offered data from millions of UK mobile phone users to police

EE, THE MOBILE phone network whose original name 'Everything Everywhere' now begins to look ironic, sold customers' private data to polling firm Ipsos Mori, which in turn attempted to sell it on to the Metropolitan Police and private security firms, the Sunday Times has discovered.

According to the newspaper, EE (formed when Orange merged with T-Mobile) handed over data including text and call records of 27 million subscribers. 'The company has claimed in meetings that every movement by users can be tracked to within 100 metres. This weekend the Met, which has been in talks with Ipsos Mori about paying for some of the controversial data, shelved any deal after being contacted by the Sunday Times,' it reported on 12 May.

The deal was negotiated last year, and Ipsos Mori ran a trial over the summer which tracked websites visited by EE customers at London's Oxford Circus, Olympic venues, Bluewater in Kent and the Metrocentre in Gateshead. 'We can understand not only where people are going, but what they have been doing before, during and after,' said an Ipsos Mori document.

In another sign that the recently withdrawn legislation known as the 'snoopers' charter' (see p17) may not be necessary for the authorities to access our private data, the information offered went beyond what could be obtained by police without a court order under the Regulation of Investigatory

Powers Act 2000 (RIPA). Yet neither EE nor Ipsos Mori appears to have acted illegally, and the Information Commissioner's Office said: 'Ipsos MORI and EE explained that the information being sold is anonymised and aggregated, and so should not allow for a specific individual to be identified... We have no plans to take any further action.'

YET ACCORDING TO promotional documents, the data included the age, gender and post-code of customers, phone numbers called and texted and the location of the customer at the time. Ipsos Mori also promised data on customers' interests and spending patterns, and details of apps used and websites visited.

Ipsos Mori CEO Ben Page, who admitted on Twitter that the deal sounded 'creepy', said it only received data aggregated for groups of at least 50 people. 'We do not have access to any names, personal address information, nor postcodes or phone numbers,' the company said in a statement. 'We will never release any data that in any way allows an individual to be identified.'

Data included age, gender, postcode, phone numbers called and texted and the user's location

EE account holders will wonder why Metropolitan Police commissioner Bernard Hogan Howe was interested enough in the data to attend meetings with Ipsos Mori himself if the data was anonymised. The Sunday Times reported that Met officers 'had been enthusiastic about the potential for tracking users of pay-as-you-go phones.'

Customers will also want to know why Ipsos Mori's promotional documents seemed to suggest that individual users' data was available. The stance taken by Ipsos Mori in public differs from that in negotiations with potential customers, who are led to believe much more specific data is available. Even the CEO seems unclear: 'Page initially said Ipsos Mori had access to individual data, although it would not pass this to police. He later said the firm could get only aggregate, anonymised data.'

One of the ways the Met was said to be interested in using the data was in the policing of large events. After an incident, it could harvest data from EE mobile phones to find out the identities of those involved.

EE seems keen to distance itself from controversy now that it's sealed the deal with Ipsos Mori. A spokesman said: 'This is not coming from us. We are not providing this type of data.' Was the polling firm trying to sell the Met what it didn't have? 'We may have to decide policing is not something we are going to do on this,' said Page when questioned by the Sunday Times. ■

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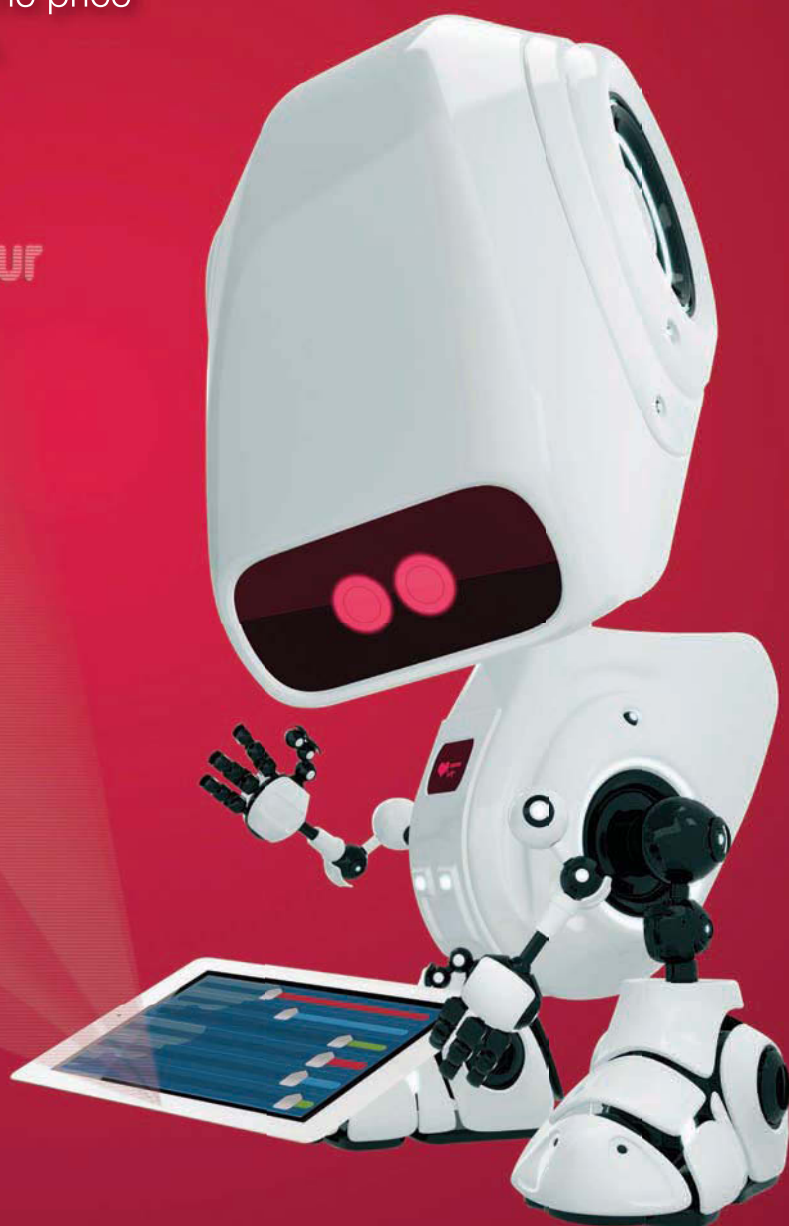
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Before the government dropped the bill, home secretary Theresa May tried to drum up support with this effort

Demise of snooper's charter may not halt snooping plans

POPULARLY KNOWN AS the 'snooper's charter', a proposal brought forward by the government for legislation that would allow the authorities to track citizens' email, text messages and website visits will not now be put before Parliament by the current coalition government, Lib Dem MP Julian Huppert and party president Tam Farron have confirmed.

The bill was left out of the Queen's Speech at the start of the current session of parliament and was widely reported to be dead, but background briefings given to journalists and ambiguous text within the Speech seemed to leave the door open. The briefing note, according to the Guardian, said: 'We are continuing to look at this issue closely and the government's approach will be proportionate, with robust safeguards in place.' In the Speech itself, which is prepared by the government of the day and read by the Queen, a passage that was agreed by David Cameron and Nick Clegg read: 'In relation to the problem of matching internet protocol addresses, my government will bring forward proposals to enable the protection of the public and the investigation of crime in cyberspace.' Matching IP addresses is a method of identifying people in real life from their activity on the internet.

Clegg had previously said the draft communications data bill, as the proposal is officially known, 'isn't going to happen while Lib Dems are in government', and this position was later confirmed by Huppert and Farron. In response to a question from

Liberal Democrat Voice editor Stephen Tall, Huppert tweeted: 'It's not coming back. At least this parliament.' And Farron agreed. 'I concur,' he tweeted.

The dropping of the bill doesn't mean none of the proposals in it will ever find their way onto the statute books. Alexander Hanff, an independent privacy campaigner, told IT Pro in April: 'Even if the bill in its current form is dead, there is still the possibility of introducing the most distasteful aspects of [it] into the Regulation of Investigatory Powers Act (RIPA) via a Statutory Instrument, and I certainly wouldn't put it past the government to use this option.'

Following the murder of a soldier by extremists in Woolwich in May, communities secretary Eric Pickles said the bill would not have helped prevent the attack.

But new law may not be necessary for the authorities to spy on citizens online. Emma Carr, deputy director of Big Brother Watch, warned: 'Last year, Skype gave British police more data than any other government, including the USA. To say that the police can't get data from the internet without the bill is simply wrong.' ■

Lib Dem MP Julian Huppert tweeted: 'It's not coming back in this parliament.' Tim Farron agreed

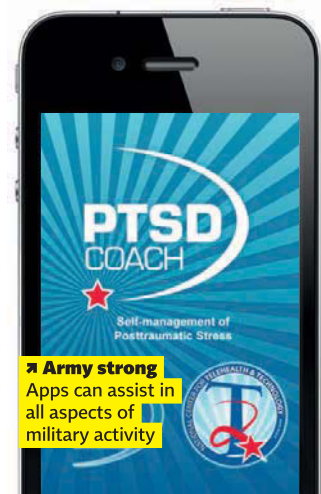
Who gets left with a BlackBerry? Don't ask, don't tell

APPLE GAINED ACCESS to a significant market for its mobile devices in May when the Pentagon approved iOS 6 for use on its networks. That means that the US Department of Defense will be able to buy iPhones and iPads for use on its secure networks.

The move follows the approval, earlier in May, of Samsung devices running a specially modified version of Android, called Knox, and BlackBerry 10 smartphones and PlayBook tablets.

Until now, the US military has relied solely on BlackBerry for smartphones, and has nearly half a million of them, according to Bloomberg. But in February, the DoD announced plans to speed-up the adoption of devices running Android and iOS. 'It's not BYOD [bring your own device]; it's the department migrating to a multi-vendor environment that is going to include more than BlackBerry currently,' Lt Col. Damian Pickart told AppleInsider at the time. 'BYOD is a long-term objective, but we're just not there yet. The technology is there, but things like security, we're not quite there yet.'

The DoD cited the improved security capability in iOS and Android as the reason for its decision, but stressed that it didn't mean it was abandoning BlackBerry. Semper fi! ■





← **Take it all**
Google's Play Music
plays all day
for a monthly fee,
a model that
Apple currently lacks

ANALYSIS Digital music services

Streaming music deal: rumour has it, Apple's still chasing pavements

GOOGLE KICKED OFF its developer conference, Google I/O, in May by launching its long-anticipated streaming music service. The syntactically titled Play Music All Access hooks into the Google Play online media store, Google's equivalent of iTunes, and allows subscribers to stream millions of songs on-demand to a computer or Android mobile device. It costs \$9.99 (about £6.60) per month, the same as Spotify, to which it's broadly comparable. It also has the ability to recommend music to users and guide them to tracks they might not otherwise listen to, something that's seen as crucial both to providers of streaming music services and the record companies who licence content to them.

Signing up those record companies is essential to the success of any music service, and Google has the three biggest – Sony, Warner, and Universal – on board. Protracted negotiations with two of the same companies, Sony and Warner, are said to be the reason Apple has been unable to proceed with its own streaming service, speculatively referred to as iRadio. The iTunes Store, by contrast, sells tracks to download and keep.

Streaming music is a growing segment of the digital music business, and one in which Apple has been expected to participate since it bought Lala in 2009. Now it seems its entrance is little more than a matter of concluding agreements with record companies. But it's unlikely it will offer the kind of on-demand streaming available from Google or Spotify. That would risk cannibalising sales of music on the iTunes Store, which have become a significant, albeit now diminishing, source of earnings for Apple over the last decade.

Instead, it's likely that iRadio, or whatever Apple ends up calling it, will complement iTunes by allowing users to discover new music and listen to content fed to them by Apple. There'll be a limited ability to choose the music you'd like to hear, but when you do hear something you like, you'll be able to buy it from iTunes with one click.

That kind of service won't be as attractive to users as one where music is available on demand, a point that wasn't missed by Google's Android engineering director, Chris Yerga. In a dig at Apple, he described Play Music All Access as 'radio without rules.'

It should, however, be an attractive proposition to record companies, because in addition to earning revenue from sales and, reportedly, a share of the advertising income, they'd be able to promote content in partnership with Apple, in much the same way as they do on the iTunes Store now.

THAT MAKES THEIR failure to reach a deal with Apple all the more mystifying. The Verge reported in May that the record companies were unhappy at Apple's refusal to pay an advance on royalties, but also that they didn't want another Pandora-like service – 'a web radio service that satisfies a lot of music consumption but doesn't pay them much.' If that's the case, they're missing the point of iRadio: to promote sales on iTunes.

This should be an attractive proposition to record companies, so their failure to sign up is mystifying

Just as record companies have for decades promoted new releases to playlist managers at radio stations, so they should be eager to have their music on Apple's service. That they're apparently not speaks volumes about their attitude to doing business.

Songwriters are a different case. They rely on often meagre royalties for income. The Verge report quoted David Israelite, president of the US National Music Publishers' Association: 'It's very important that new digital services pay songwriters and music publishers a fair share of the money. We cannot repeat the disaster that was Pandora, where songwriters were asked to take a tiny fraction of the revenue.'

Given that Pandora, Spotify, and YouTube have all failed to generate significant income for songwriters, despite the huge number of people who listen to music through those media, Israelite's caution is understandable.

Even while paying songwriters a pittance, neither Pandora nor Spotify is profitable, which begs the question: if the biggest streaming music services can't make money while paying derisory royalties, why are companies like Apple and Google so keen?

THE ANSWER IN both cases is that they see streaming music as a gateway to other products. For Apple, it's about propping up falling music sales on iTunes, selling iAds, and – most importantly of all – shifting hardware. For Google, it's about promoting Android and pulling customers into Google Play. Neither wants to lose money, but maximising profit from streaming music is not a priority for either. Equally, there's now a sense that customers would rather pay a subscription to listen to an entire catalogue whenever they like than buy music outright. If that turns out to be true, launching streaming music services is a sensible defensive strategy.

Amazon is keen not to be left behind. Its revamped Cloud Player lets users stream MP3s they've bought from Amazon in a web browser or on a mobile device. And its Kindle Fire tablets are tightly integrated with Cloud Player, so as soon as you sign in to an Amazon account on a Fire, all your Amazon-bought MP3s are immediately available. It may only be a matter of time until it extends that service to include MP3 versions of CDs you've bought from it as well.

Each service provider has a different agenda for its streaming music service, but they'll all achieve them by the same means: connecting music fans with the music they like and the music they don't yet know they like. The record companies' job is to enable that in a way that fits their business models. But if those models mean taking a short-term view of earnings, rather than seeing the long-term benefits of attracting customers, Apple may have a tough job persuading some of them to sign up to iRadio. ■

EXPERT EYE Corporate tax avoidance

Voters can change the law on tax, but there's nothing to say Apple has to wait for us

IT'S NOT NORMAL to get to the small print first, but when discussing Apple's tax affairs we need to. It has to be said, and nothing you read here suggests otherwise, that everything Apple has done with regard to its tax is legal.

Now let's get to the point. Apartheid was legal in South Africa. That didn't make it morally acceptable, and around the world people rightly protested until they got change.

Right now, around the world, people are complaining about the tax avoidance of multinational corporations. Assisted by small tax haven states – Ireland being the main villain in Apple's case – these companies fix their affairs in ways that defy logic. Tax is not paid in places where it seems it should be, such as the USA, the UK and most other populous places where Apple has a big presence and most of its customers are located.

And what's more, in places like Ireland, where the profits on the kit we all buy (and this is being written on an iPad) are declared, there is, mysteriously, no tax paid either.

Apple says that because this is all legal, there's no tax avoidance. But that's wrong. The structures are designed to get round the tax laws of those countries where Apple really makes its money (from you). So of course they avoid tax. No-one can pay as little as they do, or keep over \$100 billion offshore in cash, and claim otherwise – yet Tim Cook has done just that.

So what does that mean for Apple? The obvious answer is that it harms brand reputation. You may still like your Mac, but a lot of people won't be as happy with it as they were. We know we're being sold product by a company who thinks we're gullible. They have to if they think we'll believe their tax story. And we don't like it.

That Google and Microsoft are doing pretty much the same thing helps Apple, of course. With the three having a virtual monopoly of operating systems, where are we going to go if we're not happy? Well, actually we have a choice. It's called the ballot box. We can use it to support parties who say they will tax the profits these companies make – and which they don't reinvest in jobs, new technology or anything else, despite their claims, since they have giant cash piles instead.

At the end of the day, this is Apple's problem. We know they're a global corporation, but we're local. If they want us to engage with them, they're going to have to engage with us where we are – and that includes paying taxes for the things we want and from which they benefit.

Tax can't be a one-way street for Apple: they have to pay to win our goodwill, on which their fortune has been built. ■

RICHARD MURPHY is a chartered accountant, economist and campaigner. He was a founder of the Tax Justice Network and runs taxresearch.org.uk



Adobe CEO Shantanu Narayen says Creative Suite's switch to subscription will make work simpler and more connected.

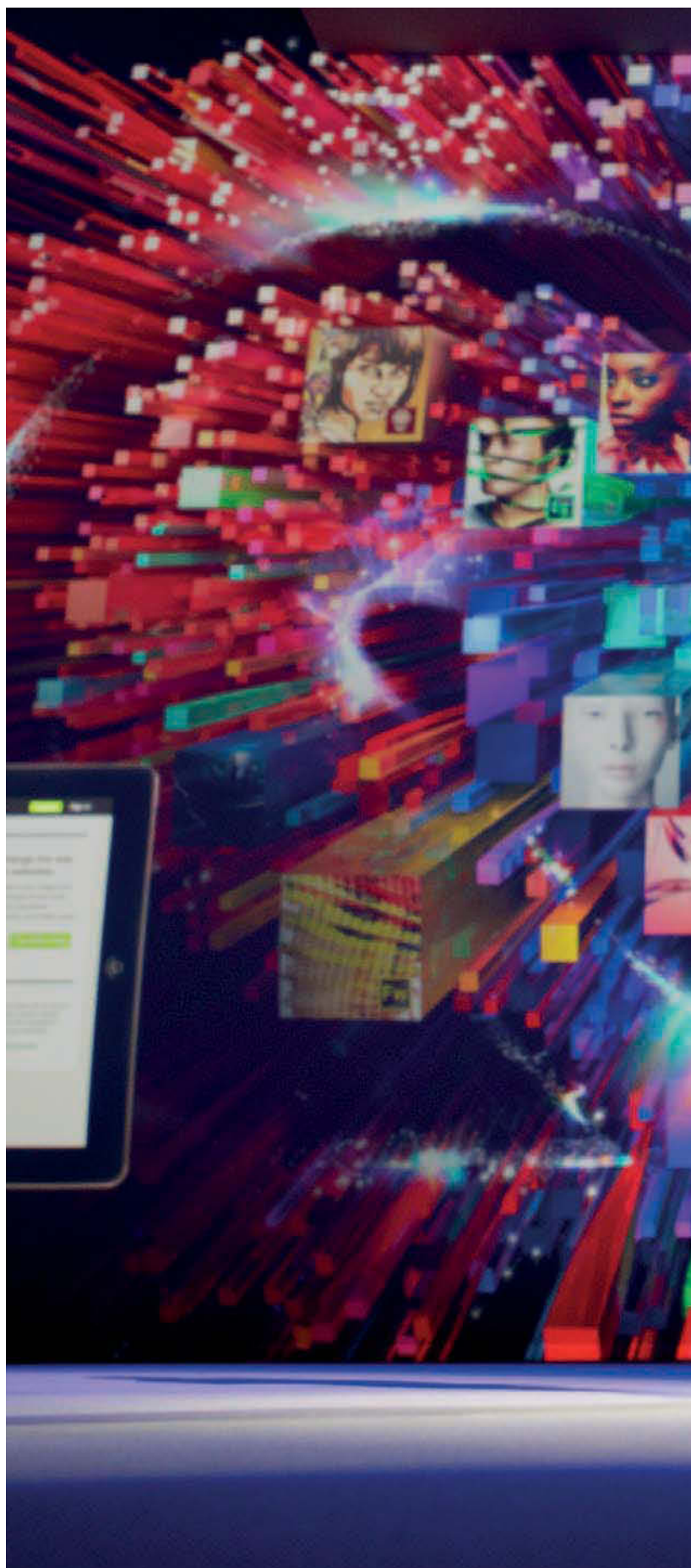
It's a bold move that software industry rivals will envy.

And it's priced to bring professional tools within reach of more users than ever.

So why is Creative Cloud controversial?

And what does it really mean for the apps you know and love?

CLOUD BUSTING







→ **But will it fly?**
Adobe's Creative Cloud promotional balloon floats over Union Square, San Francisco. The subscription service replaces one-off purchases as the standard sales model for Creative Suite apps

→ **WE HAD A** feeling it was coming – but not so soon. The product Adobe was expected to reveal last month was Creative Suite 7, a new major release of its range of professional print and web design, video and authoring apps. And sure enough the company did unveil significant upgrades. We were able to try effectively final versions of Photoshop, Lightroom and Muse before going to press with this issue of MacUser, and our findings follow in this article; the rest of the products will be reviewed next month.

But the big news from the Adobe MAX conference, it turned out, was the end of Creative Suite as boxed software and the relaunch of those apps under the Creative Cloud (CC) banner, on subscription only: paid for by the month for as long as the user chooses, then rendered unusable when the subscription ends.

Tectonic plates have shifted with less consequence, and at least they have the grace to do it slowly. It's been possible since April 2012 to buy apps through a Creative Cloud subscription rather than outright (or on 'perpetual licence', as the jargon goes), and with over 500,000 of Adobe's 12 mil-

lion users having already switched to CC, it's evidently a hit. But telling the remaining 11.5 million they would no longer have any choice in the matter was not popular. As news of the announcement filtered out online, social media lit up with angry reactions from what Forbes referred to as 'artistic types', The Register as 'frappuccino sippers'. Actually ours is a flat white, thanks.

THE PROBLEM IS that committing to an ongoing monthly payment just doesn't feel right to many creative workers – especially in an uncertain economy. The author of the @dataq_recovery account tweeted to @macusermagazine: 'What if work dries up. You'd have no way of generating more work if you lapse with the subs.' Mac specialist @jonbradbury worried about less affluent customers who previously 'got a step up the ladder with a used copy of CS... a route has been cut' and pointed out that 'buying a 5 year old mac and a 5 year old copy of software' will no longer be possible.

While the cost of Creative Cloud looks very reasonable compared to buying and regularly upgrading Creative Suite, Bradbury

highlighted the fact that not all users do so: 'We ran CS2 for a few years, we're still on CS4.' Subscribers have to keep paying or lose access to the versions already on their Macs.

Andrew Reid, who runs the EOSHD video blog, raised a further concern: 'I'm against the cloud altogether. It gives Adobe way too much control over our data and customers.' And @dataq_recovery summarised what seemed to be the fundamental issue for many users: 'People still want control of the thing that's making them money.'

The same user wondered how Adobe would now encourage the next generation. 'Without an old 2nd hand Mac & Photoshop I'd never have afforded the license fees as a college student.' Students currently get a substantial discount, paying only £15.88 per month for Creative Cloud, but this is a 'limited time offer'; and few students immediately find work after graduation, so it's unlikely they'll be able to afford the full rate. Pennsylvania student Derek Schoffstall was so incensed by the change that he started a petition against it on Change.org. It collected 10,000 signatures within a week, and at the time of writing stands at 24,586.

Other categories of user may also struggle. MacUser's Steve Caplin has built up a

Instead of £2,645 for all the apps plus over £450 for each upgrade, Creative Cloud is £563 a year

broad community of followers through his books on Photoshop, and these users are extremely worried about apps becoming unaffordable. 'While the subscription model may work for professional designers, other groups of users will be excluded. Retired people who use Photoshop as a hobby have traditionally bought a version, then stuck with it. They're not going to commit to a monthly payment for the rest of their lives.'

We put these concerns to Adobe. A representative told MacUser: 'We thought long and hard before doing this, and knew the shift would be hard for some customers. We're helping with some really aggressive pricing and promotions. We have no plans to change the pricing structure of Creative Cloud, but we will continue to explore ways to make the migration for customers easier.'

Various provisions have been made for multiple purchases. Large organisations can still negotiate site licences, which can also remove the validation requirement where an internet connection isn't possible. For smaller companies, Creative Cloud for teams adds centralised admin facilities and the ability to add and remove users within

the year – but buying several seats this way costs more, not less, than multiple standard subscriptions. Simplified and discounted licences are available for education, however.

FOR MANY CREATIVE professionals, the Creative Cloud model makes perfect sense. User @daysofspeed tweeted: ‘Good. It’s ace. Best thing they ever did. £25 a month the whole shebang. I love it.’ Like others, he valued the ability to download apps he wouldn’t have been able to justify buying individually: ‘Love being able to dip into apps outside the big 3. Client asked me last week “can you edit video?” I just answered yes.’ Jonathon Deakin tweeted: ‘An affordable alternative pricing strategy which will probably result in my first Adobe purchase.’

The pricing of Creative Cloud is certainly attractive for users of several Adobe apps. The full CS6 Master Suite retails for £2,644.50 including VAT, with upgrades to each new version, previously released every 18 months or so, costing over £450 (though these prices may be discounted by dealers). By contrast, a full Creative Cloud subscription, giving access to the same apps, costs £46.88 per month, adding up to £562.56 a year.

For users upgrading from CS3 or higher, this is reduced to £27.34 per month for the first year, and those with CS6 currently get a further discount to £17.58, totalling just £210.96 for that year. As well as selling direct to users, Adobe will be wholesaling CC activations, so the full prices may be discounted, though upgrade prices are fixed.

If users don’t want to move to Creative Cloud, they won’t be affected immediately. Although physical copies of Creative Suite 6 will quickly be phased out, download purchases of the various suite editions and the individual apps will continue to be available. Adobe plans to update CS6 for the next versions of the Windows and OS X operating systems, and while no more new features will be added, bugs will still be patched and users will have access to rolling additions such as Camera Raw profiles.

ALTHOUGH THE VOLUME of negative comments following the announcement outweighed the positive, some of the objections were based on misconceptions. Users worried that their internet connections wouldn’t be fast or reliable enough for them to work in the cloud, constantly accessing a remote server; in fact, both apps and work files remain on the user’s hard disk. Others feared CC apps would become unusable when they had no internet connection, for example while on the move with a MacBook; but apps only check their subscription status online every 30 days, and will continue to work even if this fails for up to 99 days.

There was also confusion about the availability of individual apps. While a full →

FREQUENTLY ASKED

What does the Creative Cloud transition mean?

Beyond CS6, Adobe won’t sell Creative Suite apps, such as Photoshop and InDesign, as one-off purchases. Instead, users must commit to an annual Creative Cloud subscription, paid monthly, giving access to the whole suite or to one or more individual apps. This facility has been available since April 2012, but was previously optional. The fees add up to less than the cost of buying the software and each major update, and you don’t have to come up with a big chunk of cash up front. You’re also licensed to install each app on two machines, such as an iMac and a MacBook, for one user.

What’s the catch?

A purchased copy of a Creative Suite app was yours to keep. With Creative Cloud, if you cancel your subscription, the Adobe apps on your Mac stop working. Nor can you resell the apps later, or pass them on to another user when you get rid of your Mac.

So if I stop paying, I lose access to all my work?

Nothing happens to your work, but if (as is likely) the files are in native Adobe formats and aren’t compatible with alternative apps, you won’t be able to open them. Adobe’s John Nack has blogged that ‘You should never lose access to your work’ and says Adobe is looking at solutions, such as an export-only mode. But this isn’t a new problem: users often have trouble accessing old files created with outdated apps.

What if I only need to use an app for a short time?

You can pay for one month if you don’t want to commit to a year, but it costs more.

Will apps only work when I have an internet connection?

No. Once your subscription starts, you can download the apps you want, install them on your Mac (or a PC – both OS X and Windows versions are covered by the same fee) and activate them at any time; you’ll need broadband for that. Installed apps then run normally on your Mac – though in future some features could rely on a remote server. Every 30 days, apps will try to validate your CC subscription online; if you have no internet connection, they’ll keep trying for 99 days before deactivating. If you ever hit problems with validation despite this leeway, you can contact Adobe via phone (9am-5pm Monday to Friday) or online chat. Adobe tells us: ‘We are absolutely there to support customers with their Creative Cloud membership.’

What if I already have Creative Suite apps?

Nothing changes. It’s up to you whether to upgrade to CC (with a hefty discount on your first year’s subscription) or keep using CS for as long as you like. Bug fixes and compatibility updates, including Camera Raw formats for new cameras, will continue to be made available for CS6 for the foreseeable future, but no new features will be added.



How will upgrades be released for CC apps?

As and when they’re ready. Since they won’t cost any extra, users are likely to upgrade more often, meaning it should become rarer to have to work around colleagues, clients and suppliers using older versions – although some users may still want to wait for bugs to emerge and be fixed before committing to upgrades. The choice will always be yours whether to update an app or not, says Adobe.

Do I have to store my work in the cloud?

Not at all. In fact, you only get 20GB of space with a standard CC subscription – meagre compared to, say, Flickr’s 1TB (50 times more) – so you’re not going to get very much stored anyway. But you can share files easily with other users, and sync settings for your apps between Macs, among other features. Various hosting services for the web apps are thrown in, along with the ability to publish unlimited Single Edition apps from InDesign via Digital Publishing Suite; and a basic Typekit account is included, so you can use a large selection of fonts both on the desktop and on websites at no extra cost (additional licensing may be required for larger projects). Creative Cloud also integrates with Behance web portfolios, giving you Pro access.

→ Creative Cloud subscription provides the best value, any individual app can be had for £17.58 per month – £211 a year. That doesn't seem unreasonable for an app like Illustrator CS6, which costs £565.80 to buy outright, and it's a positive bargain for Photoshop, which (in the Extended edition, which the CC version matches in scope) costs £944.64.

Speaking to Silicon Valley blog VentureBeat, Adobe executive Scott Morris likened the shift from perpetual licensing to Creative Cloud to the earlier move from standalone apps to Creative Suite. 'We definitely know that not everyone is ready. Ten years ago a lot of customers were upset or frustrated or angry and didn't understand what Adobe was doing. Then, what they saw over time was that the value they were actually getting from the Suite was high.'

To put it more bluntly, as independent user experience designer Aral Balkan told MacUser: 'Customers don't always know best.' Perhaps users will come to terms with CC as they did with CS, but there's no denying that it raises bigger issues. MacUser's technical editor, Keith Martin, posted: 'Should software be a tool that you buy and use forever, or a club membership that you keep paying for?'

In response, Mac consultant Joel Smith mused: 'It's just change, and everything changes. I'll find something that works for me. Maybe it will be Creative Cloud, maybe not. I'll just think of it as an invitation by Adobe to more closely examine the tools I'm using and what I'll use in the future.'

ALL THIS ANGST risks overshadowing the actual products Adobe is launching. The entire range, give or take bits and bobs, has been revamped not only with additional features but with some changes to software architecture and user interface that clearly reflects a determination to tidy up the apps and make them more consistent.

Something Adobe has repeatedly referred to in both public and private communications about Creative Cloud is 'focus'. Although it might not be obvious to outsiders, the cycle of periodic updates, with their co-ordinated, heavily marketed, commercially timed version number increments, tends to put a huge strain on any retail software product team, and there's a palpable sense of relief within the company that developers will no longer have to work towards CS upgrades at the same time as progressing the CC feature set.

Product manager and prolific communicator John Nack, in an extended blog post on his feelings about Creative Cloud as a long-time Adobe employee, has described the transition as 'a move away from "big-bang" feature updates and towards continuous refinements', allowing 'more nimble development' and enabling the company to

HOW MUCH?

Creative Cloud Complete Individual

£46.88

inc VAT per month when you commit to a year in advance, totalling **£563** per year

£17.58

inc VAT per month for the first year if you have CS6, totalling **£211** per year

£27.34

inc VAT per month for the first year if you have CS3 or higher, totalling **£328** per year

£15.88

inc VAT per month for qualifying students and teachers, totalling **£191** per year

Photoshop CC, Illustrator CC, InDesign CC, Dreamweaver CC, After Effects CC, Premiere Pro CC, Adobe Muse CC, Acrobat XI Pro, Audition CC, Bridge CC, Encore, Fireworks, Flash Builder Premium, Flash Professional CC, InCopy CC, Lightroom, Media Encoder CC, Prelude CC, SpeedGrade CC; 20GB of cloud storage; access to Typekit fonts; access to services to create mobile-ready content and apps. Mac and Windows included

Single App

£17.58

inc VAT per month when you commit to a year in advance, totalling **£211** per year

£8.78

inc VAT per month for the first year if you have CS3 or higher, totalling **£105** per year

Any one of the desktop apps above plus the same cloud services

Creative Cloud for teams

£65.44

inc VAT per month per desk when you commit to a year in advance, totalling **£785** per year per desk

£37.11

inc VAT per month for the first year if you have CS3 or higher, totalling **£445** per year per desk

100GB of cloud storage per person; centralised billing and admin; flexibility to add or reassign seats when needed

Most apps are now 64-bit and require a 64-bit Intel processor, ie Core 2 Duo or higher, and OS X 10.6.8 or higher.

Creative Suite 6 Master Collection
£2,644.50 inc VAT; £755.22 for students and teachers. Single apps £282 to £945. Multi-app options £1,228 to £1,895.

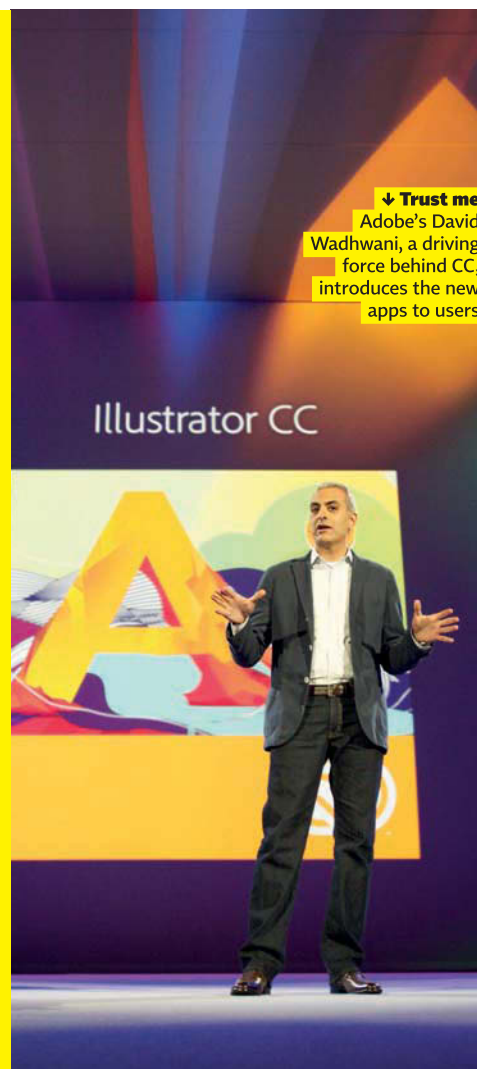


IMAGE ADOBE/DAVID ZENTZ PHOTOGRAPHY/NOVUS SELECT • DAVID WADHWANI SPEAKS AT ADOBE MAX, LOS ANGELES, 6 MAY 2013

'think broader'. Previously, 'when crunch time came, we'd have two lousy choices: either rush to finish a feature and make the [next paid upgrade] release, or cut it, putting it 18-36 months from customers' hands.' Now, developers will be able to release updates to subscribers whenever they're ready.

That's for the future, though; for now, the release of these CC apps is the last of the big all-at-once upgrades, a CS7 launch in all but pricing model. We'd hoped, as in the past, to bring you immediate reviews of every app, but with the launch date of 17 June still some weeks away, Adobe wasn't yet able to supply us with final code. We've been closely following the beta programmes of Photoshop, Lightroom and Muse, however, and our reviews of what are essentially finished versions of those start on p26.

Note that Lightroom is an exception to the CC rule, in that Adobe has said it will remain available in this new version as a one-off 'perpetual licence' purchase. If you only need Lightroom, you don't have to buy a monthly subscription, although it does also come as part of the full Creative Cloud plan. From p36 we summarise the new features.

Yes.

I for one welcome our new subscription-based overlords. A subscription model is more honest and open. All apps are services; some of us just haven't realised it yet. It's how well Adobe's products can compete with the excellent and inexpensive alternatives now available that will determine whether they're successful. I can only hope moving to a subscription model will make Adobe focus more on improving the user experience of their products.

With a subscription model, there's less lock-in and it's easier for people to switch. You have much more of a psychological desire to stay with a product if you've plunked down several thousand pounds for it. So unless Adobe continues to improve its products, this move may come back to bite it.

As a developer, I know that software is either a living, breathing thing or a dead thing. The moment you stop working on something, it begins to die. Having lots of frequent upgrades – a constantly evolving application – allows you to always have your finger on the pulse of your users. You discover problems faster and are more flexible in implementing changes.

In the past, when most people bought their software in a box, versions made sense. The internet changed that fundamentally. The web is versionless. Can you tell me which version of Gmail you're using? Neither can I (if I used Gmail, that is, which I don't). It makes perfect sense that desktop apps follow. As far as a user is concerned, there are only ever two versions of a piece of software: the current one and an outdated one. Versions were always a lie.

Aral Balkan, designer/developer

No.

I don't want Creative Cloud. But it'll soon be the only way I can update Photoshop and the other apps I use as a professional photographer. I've bought every other version of Photoshop since 2002. I had CS2, then CS4, then relented and bought CS5 for its amazing new features, which, ultimately, I've seldom used. The vast majority of what I do now could have been done in version 7, before Creative Suite.

Already, I simply don't feel like a valued Adobe customer. I've been forced into less efficient workflows by upgrades. My biggest gripe this year was the blocking of Camera Raw 7.3 from CS5. CS5 is less than 18 months old, and for me this was an essential feature. On buying a Canon 6D, I found its Raw output wasn't compatible. Without the 7.3 update, I was forced to either join Creative Cloud, buy CS6, or start using the free DNG Converter. I chose the last, but since I process up to 2,000 images a week, that extra step takes time. And because I always keep everything (I have film in my attic from 20 years ago), I now have to store the Raw files and the converter DNGs, and it's all getting to be just too much.

Now, Adobe's trying to railroad me into a monthly subscription. Even worse, it's charging more for Creative Cloud in the UK than in the US. I've never been deluded that I 'owned' Photoshop; it's always been a licence. But the idea of having to keep paying just to keep apps working means I'm beginning to look elsewhere. There's so much great software out there for photographers. When you wake up and see the work being done by Acorn 4, GIMP, Pixelmator and many others, you won't hesitate to step away. I'm already well down the exit path.

Ewen Rankin, photographer

INTERACTIVE AND ONLINE design has been tackled by Adobe and its rivals in the graphic design software sector since the 1990s, with painfully variable success. For years, Adobe's Flash dominated app, kiosk and web delivery, but those years are gone, and in failing to make the transition to mobile, Flash has given up its role as a component of the web. Last year, when Adobe first launched its Creative Cloud site, Flash was missing from the 'Web' tab. Flash Professional still exists as a content creation tool, but despite an emphasis on output to HTML5, the new features in Flash Professional CC – HD video export, real-time mobile testing, unlimited pasteboard size – point to a product aimed at app development rather than online.

For the web, Adobe has been trickling out smaller, more task-specific, standards-based tools that are more relevant to modern working methods. Edge Tools and Services cater for responsive design (Edge Reflow), coding (Edge Code), web-standards animation (Edge Animate), multi-device previewing (Edge Inspect), mobile app packaging (PhoneGap) and online typography (Typekit and Edge Web Fonts).

The first casualty of this change in approach is Fireworks. It started life as Macromedia's 'Photoshop for the web', mixing and matching vectors and bitmaps. Acquired by the maker of Photoshop in 2005, it immediately felt dispensable, and it's finally been dropped from the CC line-up. Although Fireworks CS6 will remain, it's been decided that 'creating new, task-focused tools would better enable [Adobe] to meet the future needs of web designers and developers'.

Funnily enough, though, Photoshop, which always seemed awkwardly crowbarred into web workflows and has rather fallen out of favour in that sector compared to UI-focussed tools like Sketch, now gains some features that will be very interesting to UI designers, including type style presets, colour swatch import from CSS and SVG, and copying of CSS values from layout components. Adobe is also currently previewing (remember what we said about feature announcements no longer having to coincide with major upgrades?) a workflow from Photoshop CC to Edge Reflow CC that will 'enable creatives to build web designs in Photoshop that can easily be turned into

responsive websites' – in other words, to cut out some of the web design part of the Photoshop mockup → web design → finished site workflow. How easily or successfully remains to be seen, but if this works and Edge Reflow impresses, Adobe could make Photoshop relevant to the web again.

NOT ALL OF the surviving tools are of the minimal, nimble variety. But Dreamweaver, another Macromedia acquisition, is no longer touted as a total web solution in a box. Instead, Adobe suggests: 'Stick with Dreamweaver CC from start to publish. Mix in some Edge tools for animation, responsive design, or even to create a mobile app.' Okay... 'Or build an entire site with the Edge tools you choose.' Ah. Dreamweaver users could be forgiven for thinking they see some writing on that wall.

Although Dreamweaver has embraced new web standards, it's retained too many legacy components, and a continuing slide towards enterprise-style usage seems inevitable; it's not going to make a comeback among mainstream web designers. Still, Dreamweaver CC has useful updates. →

Photoshop CC

An upgrade to Photoshop is always big news in the design community, with peeks at upcoming killer features eagerly pursued. This time, it's been barely a year since CS6, a departure from the usual 18 to 24-month cycle, and it's no surprise that the focus is on the 'CC' rather than the 'Photoshop'. Still, some decent additions have made the cut – even if the infamous de-blur filter, which caused such ripples when it was, ahem, accidentally leaked shortly before the appearance of CS6, isn't quite what some people hoped it would be.

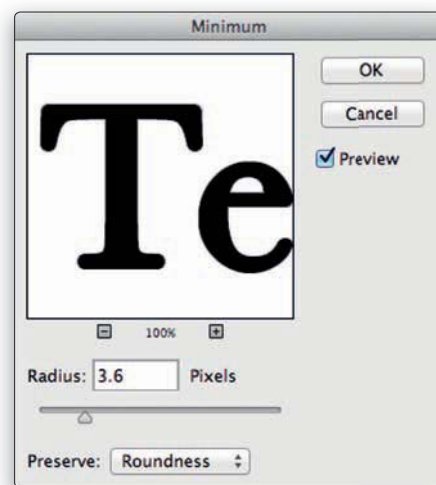
As it turns out, Creative Cloud brings a very tangible benefit in terms of features: the distinction between the regular and Extended editions of Photoshop has gone, and all subscribers will get the 3D modelling, measurement and medical tools previously reserved for Extended.

Action stations

Photoshop's Actions panel has long provided an endlessly useful tool for building sequences of steps into instant shortcuts that can be performed with a keystroke. Now Photoshop CC brings Conditional Actions,

which use an if/then/else model to specify what the Action should do next, depending on whether specified conditions hold true.

A preset list contains the range of conditions that can be applied, including examining the bit depth and colour mode of the image, checking its orientation, seeing



The Minimum and Maximum filters can be used to expand, reduce or tighten masks and alphas. But, particularly when enlarging selections, should it just expand from the nearest point or try to round off corners? Now you can choose whether to preserve Squareness or Roundness

whether the document contains layers, and so on. You can't add new conditions to the list, but those that are present are very workable. For example, you might want to make a layer filled with Hard Light neutral grey to match an existing layer or layers.

Your Conditional Action can tell Photoshop to check whether a selection is active at the time the shortcut is triggered, and to select all of the current layer's pixels if not; but if you've made a selection yourself first before triggering the shortcut, then Photoshop will proceed to an alternative Action that misses out that step.

Getting a Conditional Action working does involve setting up three Actions: one to run if the conditions hold, another to run if they don't, and a third to control the whole process. But in the long run, being able to set up complex programmed Actions like this could save a great deal of time and effort.

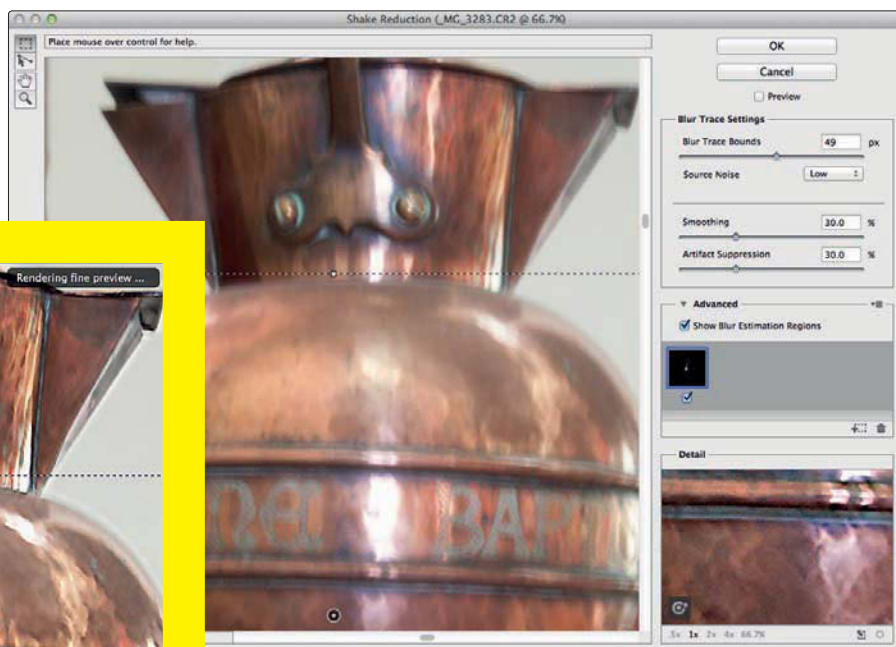




Finding your path

Photoshop's path handling has always been somewhat rudimentary, so it's pleasing to see a step forward in this regard. Boolean operations can now be determined from the keyboard, using the shortcuts + - * / to set whether overlapping paths combine, subtract, intersect or exclude each other. So far, this is simply the equivalent of choosing icons from the Options bar, but quicker. But, with both paths (independent non-printing vector lines) and Shapes (objects stored on a layer), you can also choose the option Merge Shape Components. This will create a single path from multiple selected paths, in much the same way as Illustrator's Pathfinder panel combines multiple objects. Applying Merge Shape Components means that two combined paths literally become one – there's no way to separate them afterwards. But it's extremely useful and long overdue. There's one additional keyboard shortcut when drawing paths: while adjusting a point's Bézier handle, you can now hold down the space bar to move the point itself around before committing to its direction or location.

Shake Reduction does a decent job here, but don't imagine it'll rescue every blurred photo



Shaken, not blurred

The much-anticipated new Shake Reduction filter is hidden away in the Sharpen submenu of the Filter menu, which gives you some idea of Adobe's attitude to it (compare with the Oil Paint filter introduced in CS6, for example, which is right at the top of the menu). It isn't the groundbreaking fix for all dodgy camera-work that we were kind of led to expect.

Instead, it's an attempt to correct one very particular kind of blur: camera shake. The kind you get when you're shooting a fairly long exposure and your hand drifts or someone nudges the tripod. And one problem is that it doesn't do this at all well with noisy images. You might think that was ironic, because you're likely to get the most camera shake when you're shooting on a long exposure setting to try to cope with low light, from which noise would generally result; and you'd be right.

Anyway, it's quite clever. The filter works by analysing the image and tracing a highlight and its ghosted counterpart to produce a 'trace path', then attempting to compensate for it. You can define several sampling regions throughout the image, and the filter will blend the result between them; you can also define a trace direction yourself, if you have the confidence, although in our tests we found it almost impossible to improve on Photoshop's estimations.

This is one of those filters that seems like a brilliant idea and works reasonably well when applied to exactly the right kind of image. The difficulty lies in finding that image. We examined several dozen likely candidates before coming up with just one for which the filter produced a passable effect, as seen above.

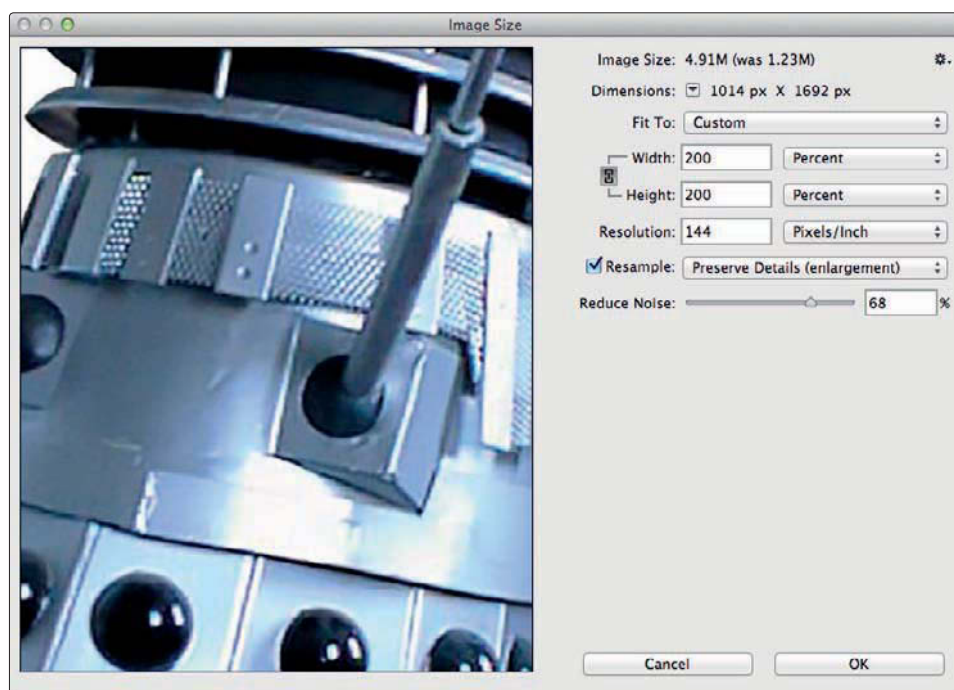
Size matters

There are several third-party solutions for enlarging images while attempting to preserve image quality, all of them eager to point out Photoshop's shortcomings in this area. Photoshop CC introduces a revamped Image Size dialog which, although not offering all the resampling and smoothing capabilities of Alien Skin's Blow Up or OnOne's Perfect Resize, does at least make the enlargement process less opaque.

You can let Photoshop pick the best enlargement method on its Automatic setting, or choose between two methods suitable for different purposes: Preserve Details (new, and good for architecture,

automotive and jewellery enlargement) and Bicubic Smoother (good for faces and landscapes). They produce noticeably different results, and to help you choose between them a large preview pane shows a detail view of the enlarged image. The whole dialog box can be stretched to make the preview even larger, should you need it.

Preserve Details is prone to exaggerating noise, so it comes with a slider that can be used to reduce the artefacting, with the preview showing you exactly how the image will look. The main reduction setting remains Bicubic Sharper, but the older enlargement algorithms (Bicubic, Nearest Neighbour and Bilinear) are still options. All the methods can be selected with a keyboard shortcut.



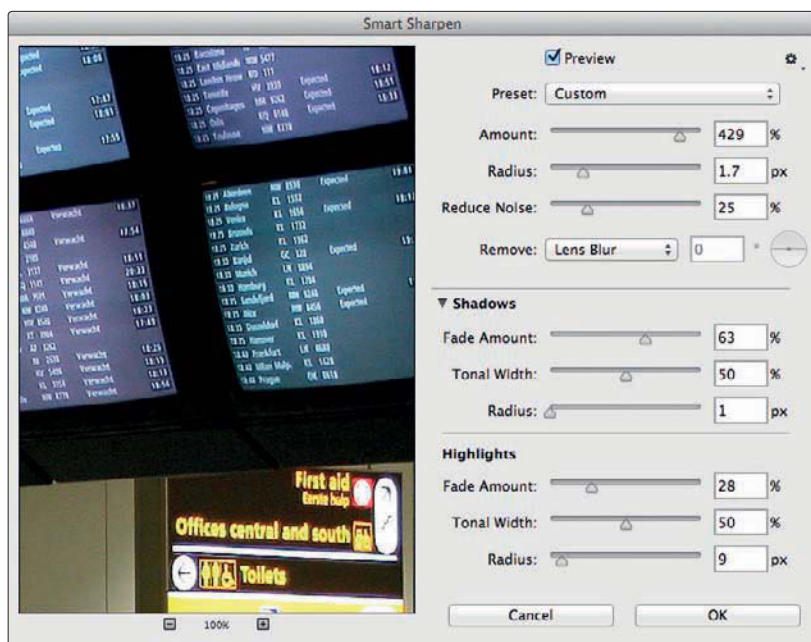
A sharper image

With Shake Reduction proving something of an esoteric curiosity, it's gratifying to see some meatier functionality added to the Smart Sharpen filter, which now provides solid, workable results with little effort. Unlike Unsharp Mask, which some users find tricky to master, Smart Sharpen's watered-down slider range produces acceptable results even at the extreme end of the scale: a 500% sharpen looks fine, whereas the equivalent setting in Unsharp Mask would be completely unusable. Power users can still turn to the traditional alternative, but Adobe is doing everyone else a favour by easing them towards subtlety.

As well as featuring an overhauled sharpening engine that does seem to produce stronger results, Smart Sharpen now includes a pop-up menu in which you choose the kind of blur you're trying to counteract – Lens Blur, Motion Blur or Gaussian Blur. Depending on which you select, you see a rather different effect on the image, as Photoshop's sharpening algorithm adapts to the prevailing conditions. You may find this is more about trial and error than correctly identifying the original image's real-world challenges, though.

The ability to fade off the sharpening effect in shadows and highlights, independently of each other, isn't new to this version, but does mean it's possible to reduce the artefacting created by the sharpening process in places where it's not necessary.

With a minimal chance of degrading your image, Smart Sharpen looks set to attract a much wider following.





WE'RE SO SORRY Now that the Liquify filter can be applied to Smart Objects, leaving the results editable, you can change your mind as often as you please. Imagine that.

Layer cake

Photoshop has had the ability to merge 3D layers for some time, so that multiple objects could interact, cast shadows upon each other and generally behave as if they were in the same scene. But once merged, 3D objects couldn't be deleted or duplicated - a significant interface drawback. Now, you can not only duplicate and delete

them, you can also create Instances. These are effectively clones of each other and, like duplicated Smart Objects, editing one produces an identical effect in all the others. If you don't want a particular clone to follow the herd, you can choose to 'bake' it, to break the symbolic link to the original.

Several updates to 3D rendering appeared in Photoshop CS6.1, which was available only to Creative Cloud mem-

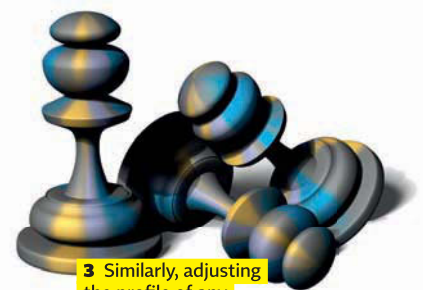
bers, including faster final rendering and improved previews of soft shadows - and of course these features have been built into Photoshop CC as well. The process of painting directly onto 3D layers has also undergone a massive boost in performance in this release, even when painting on one of several Instances: the texture appears simultaneously on all the copies in real time, as you paint.



1 'Instances' allow objects to be cloned within the same 3D layer, like this pawn model



2 Painting on any one of your clones produces a duplicated result on all the others



3 Similarly, adjusting the profile of any of the instances will simultaneously affect the others

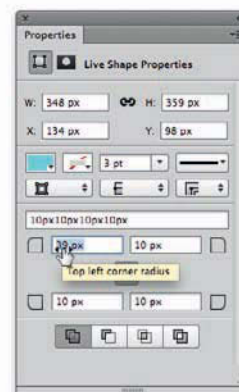
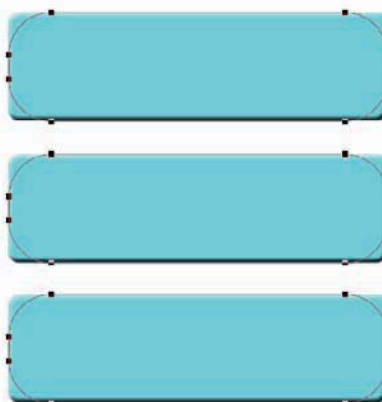
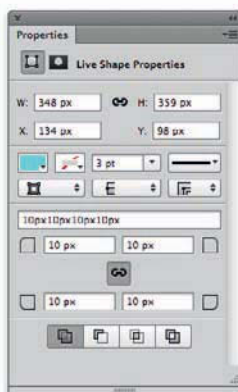
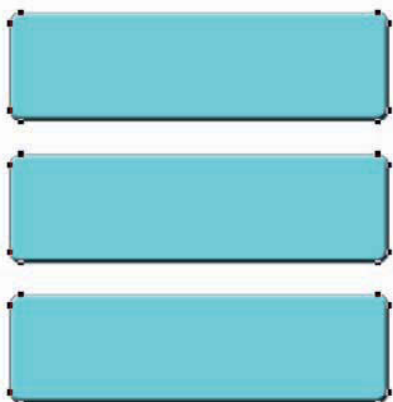
Get a round in

Creating round-cornered rectangles in Photoshop was always a rather hit-and-miss operation. You'd specify a corner radius numerically, drag out your rectangle, and then you'd be stuck with it. You could always scale the whole rectangle, but that was a clumsy workaround. Now the rectangular Shape tool features a Properties panel

dialog that allows you to drag to set a corner radius – even long after the shape or path has been created. The default setting is for all four corners to change in tandem, but you can unchain them to allow each corner to be adjusted independently.

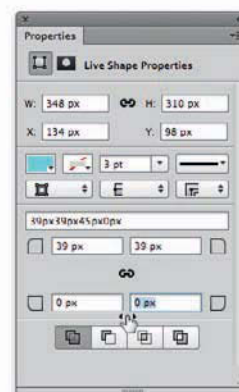
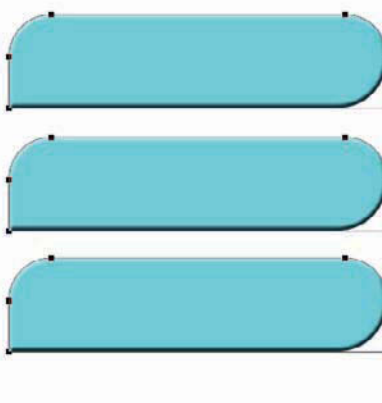
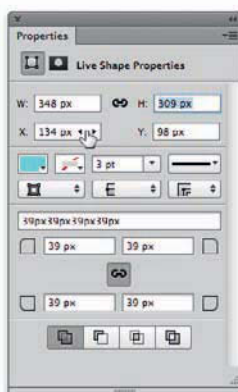
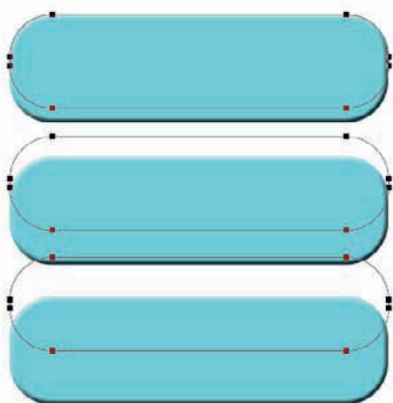
So, for instance, you could make a shape with just one rounded corner. This feature is complemented by the fact that, for the first time, you can now select and modify

multiple paths and Shape layers at the same time. So if you're producing a UI mockup that features a lot of rounded buttons, you'll now be able to adjust the rounding on all of those buttons at the same time. Better still, you can also adjust the width and height of the selected Shapes, without affecting the corner radius you specified – producing a uniformity of scale and shape no matter where the buttons are.



1 Photoshop CC can now manipulate any number of paths or Shape layers simultaneously – just select them all first

2 Dynamic corner adjustment means corners can be altered on the fly, with your changes applied to all selected objects



3 The height and width of objects can also be changed in the Properties panel, but multiple objects are treated as one group

4 You can now apply a different radius to each corner of a rectangle, making it easier to create and edit the shapes you need

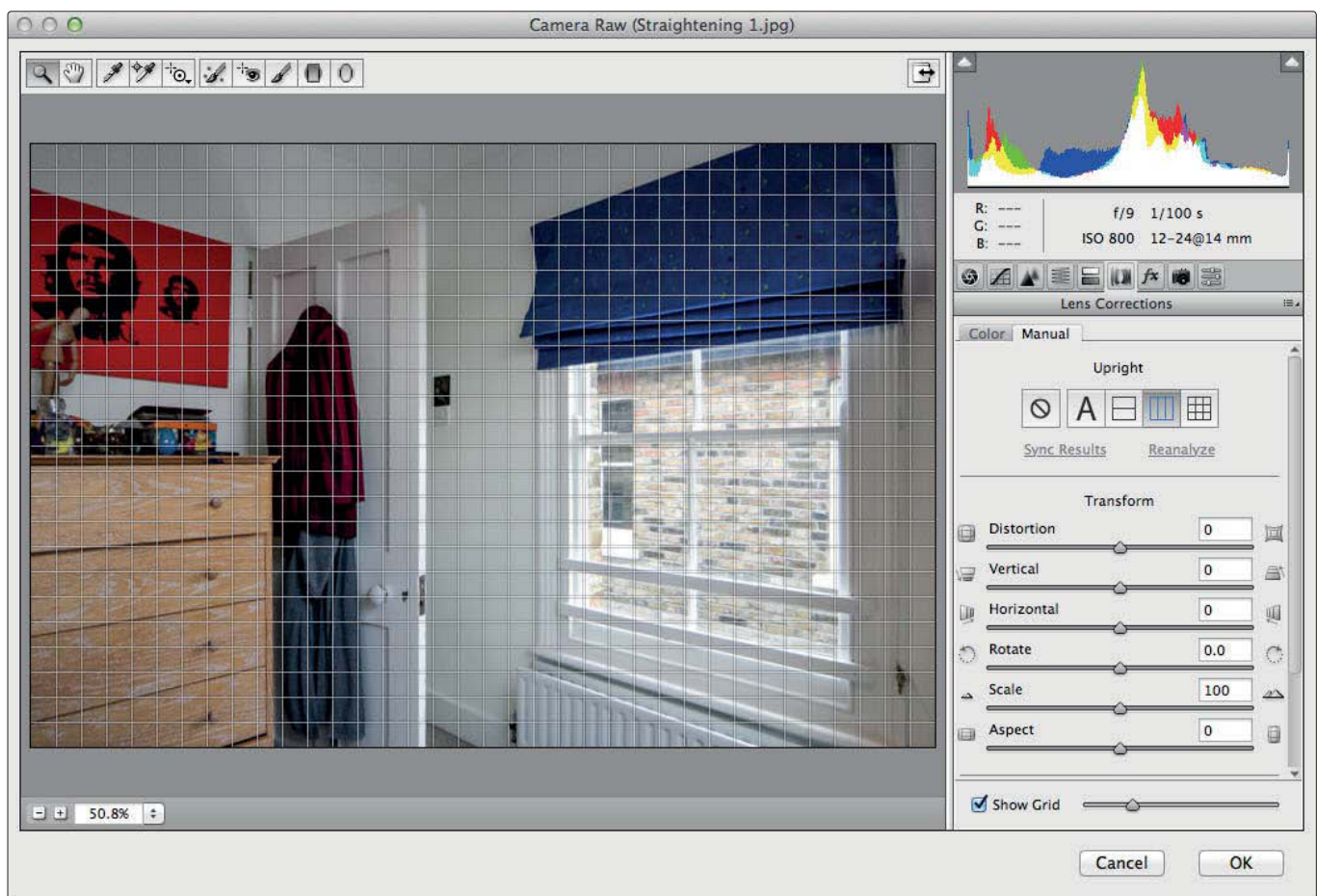
Smarter than the average filter



When Photoshop introduced Smart Objects back in CS2, they came with the ability to apply filters in such a way that the effect could be modified, masked, hidden or even removed altogether at a later date. Some filters, but not all, could be used with Smart Objects. Now, Photoshop CC adds to the list of those that are compatible both the new Blur filters introduced in CS6 and the Liquify filter.

This last addition is a major bonus. Liquify is capable of both subtle and gross distortions,

covering everything from the twitch of an eyebrow to a complete body reshape. But it's always been a tough technique to master, and once applied, it was impossible to edit the result. Now, as a Smart Filter, you can apply a distortion to a layer and then modify it at any point down the line. The Liquify filter also has a new Smoothing tool in this release, which irons out the over-crisp edges that you'll find are occasionally produced when smearing images.



Raw for all

Camera Raw is Adobe's tool for working with the images captured, in their raw state, by high-end digital cameras. The Camera Raw dialog has long had some of the best image enhancement tools in Photoshop, and has now been updated to include an Auto Straighten filter, which attempts to square up vertical or horizontal lines in an image; a new Spot Healing tool that can work with selections painted as freeform shapes, rather than just the circular selections that were previously enabled; and a new radial Gradient adjustment, to complement the linear gradient in previous versions of Photoshop.

The biggest news, though, is that the entire Camera Raw dialog is now available as a filter. Previously, it was possible to edit regular images – JPEGs, TIFFs and so on – with Camera Raw, even though they weren't in a raw format, by choosing them in Photoshop's Open dialog and selecting Camera Raw as the file type. Clumsy, but it worked. Now, you can bring the vast range of subtle adjustments to any image, directly within Photoshop. And it can be applied not just to a single image, but to a single layer within a composition.

This means you're now able to apply Camera Raw's Clarity filter to a layer (it isn't available anywhere else in Photoshop), or use its Defringe tools, or boost the Exposure setting while simultaneously reducing the contrast and darkening the shadows. Because all the effects are contained within a single dialog, they're all applied in concert with each other, minimising any degradation of the image. This may well be the most significant new feature in the whole release.

Share and share alike

Photoshop CC, like Creative Cloud in general, is now all about sharing. And there are several ways in which this works. The ability to create designs in Photoshop and copy CSS styles for use in other applications was introduced in CS6.1; a modification here is that copied units are always set to pixels, irrespective of your preset preferences. The CSS also now handles transparency correctly, which is good news for those working with gradients.

If you work on more than one computer – and your Creative Cloud membership allows you to install software on two – you can now opt to share your settings between them. This means that if you create a custom brush on one machine, or define a text style preset, or build a complex Action, then it

should automatically sync with the other machine. It's certainly good news for those who found the Preset Manager was good at importing presets, but strangely seemed unable to export them.

A Creative Cloud subscription also gets you free membership of Behance, the portfolio promotion site for artists. Rather than choosing files and saving them to disk for later upload, you can upload to Behance directly from within Photoshop. You can also, if you choose, store your files in the Cloud, so making them available not only on your other computer but also, to some extent, through the iOS versions of Photoshop. If you're in the habit of saving your work regularly as you go along, though, saving in the cloud could quickly use up a lot of bandwidth.

Lightroom 5

Yes, the new version is officially called Adobe Photoshop Lightroom 5, not Lightroom CC. With Creative Suite heading to the great software store in the sky, photographers who are resistant to Adobe's subscription model still have the option of buying Lightroom with a traditional fire-and-forget licence. Lightroom 5's launch schedule is apparently running a little way behind CC's, and what we don't know at the time of writing is how much it will cost, but no big change is expected from Lightroom 4's £106.48 inc VAT, with a not very heavily discounted student price of £60.57. If you do go for a full Creative Cloud subscription, Lightroom 5 comes free.

Thanks to a public beta programme, many users have already tried out the app, and the first impression is that this is very much an incremental upgrade. The interface remains the same, and where Lightroom 4 added new modules for Maps and Book making, you have to dig a little deeper to find the new features here.

One of the most interesting additions is a workflow improvement rather than a new editing tool. New Smart Previews do away (partially) with the need for mobile photographers to take their entire photography catalogue with them everywhere. Opt to build a Smart Preview of each image – you can do it at the import stage – and Lightroom will create a new DNG file that's 2,540 pixels long on its widest edge. These files can be sorted, flagged and edited even if the original RAW or JPEG is unavailable, solving a problem for photographers with vast image libraries on unwieldy external disks.

Impressively, Smart Preview files can even be exported as high-res finished files. Our test comparison between a file exported from an original Raw image and a file

exported from a Smart Preview showed very little difference between the two. There's also a disk capacity benefit which will be keenly felt by owners of space-constrained SSD MacBooks: a folder of 18-megapixel RAW files occupied about 1.8GB on our Mac. Converting them all to Smart Previews created a new batch of files just 66MB in size.

OTHERWISE, THERE MIGHT not be much in the way of groundbreaking new features, but there are plenty of interesting extras. The Develop module is the recipient of many of these, such as the new radial filter. This works

in a similar way to the existing graduated filter: click and drag on an image and a circular filter is created with feathered edges. It can be used to selectively apply all the same settings as the graduated mask, such as exposure, contrast and saturation, and can be used to create localised vignettes.

Another new feature brings Lightroom a step closer to Photoshop: the Clone Stamp has been significantly refined. Before, cloning could only be done from a single point; now, the clone tool works as a brush, allowing you to paint an irregularly shaped area to clone over. The only current omission is the ability to make the clone brush auto-masking.

Further refinements have been made to Lightroom's geometry correction skills, with the Lens Correction palette now capable of analysing vertical and horizontal lines in an image and straightening them. It works in conjunction with the ability to use pre-configured lens profiles to correct image brightness, contrast and geometry depending on the lens used, and is a useful tool for tidying up images in a single click.

Beyond this, Adobe's characteristic JDI ('just do it') features – small, thoughtful additions that the developers reckoned they could put in without too much effort, so why not? – are scattered throughout the app. These range from the should-have-been-there-already (you can now add page numbers to projects created in the Books module) to the useful-to-a-few, such as Lightroom's new-found compatibility with



← Make room

Smart Previews are reduced copies of your photos that you can still work with when you can't access the full original files, perhaps because you're on the road and your storage isn't



→ Take flight

Although it'll come with Creative Cloud Complete, Lightroom 5 remains a standalone app that you can buy once and keep

PNG files. The ability to overlay an image – including PNGs with an alpha channel – is welcome, giving photographers the ability to crop images more precisely or preview what an image will look like with a logo.

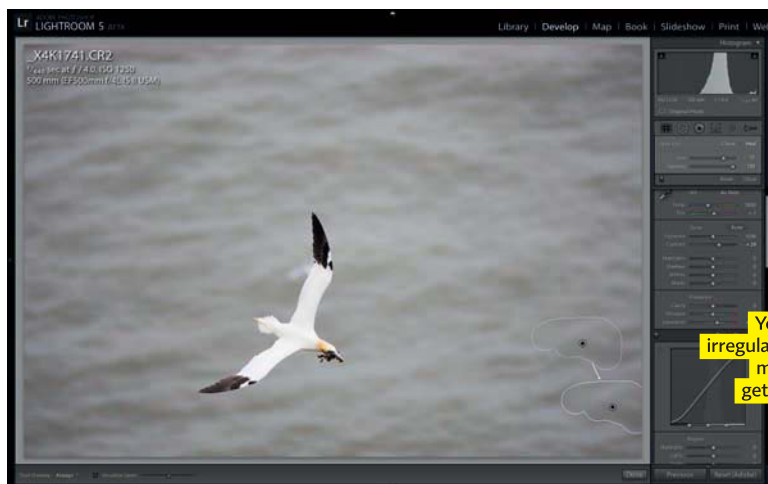
LIGHTROOM 5 IS a small step compared to the giant leaps made in previous upgrades. Its new features will undeniably be useful to a solid handful of photographers, but it's hard to pin down anything with universal appeal. So much so, in fact, that if it weren't for the likelihood of Adobe supporting new Raw formats only in the current version of Lightroom, the £60 upgrade price for existing users would be quite hard to justify.

Frustratingly, while Smart Previews are likely to be a great help to many, Lightroom is still hamstrung in its ability to work on a network: images in a library can be remote, but the catalogue file itself must be local.

Still, for those yet to be converted to Lightroom as a whole, version 5 is the best yet, and if the price remains as competitive, Photoshop-using photographers shunning the cloud have a very easy choice to make.

→ Centre punch

The new radial filter lets you apply an elliptical graduated mask



← Clone wars

You can now clone irregularly shaped areas, making it easier to get seamless results

Muse CC

Unlike the other CC components, which are mostly upgrades to familiar apps, Muse probably does need some introduction. It's a visual web creation tool aimed at designers who want to be able to put together sites but would rather let coding be something other people do. First introduced last year, Muse has always been subscription-based, available as a single app and as part of Creative Cloud. This enabled Adobe to bundle it with complimentary hosting via Business Catalyst – albeit at a basic account level – as well as 20GB of cloud storage.

If you're an InDesign user, you'll notice more than a passing resemblance in Muse's layout and operation; some of the program's team members came over from InDesign.

So content in Muse is built using combinations of rectangular frames and text boxes which can be styled and manipulated to suit. You get the ability to define master page templates as well as text and graphic styles, enabling site-wide design changes in an instant. Along with the standard design tools come 'widgets', customisable elements that let you embed feature-rich interactive content such as slideshows and presentations with video and audio, as well as fully customisable tooltips and contact forms.

Your site layout can be tailored to work with both desktop and mobile browsers; the necessary styling changes are included when the site is published, and activated dynamically when required.

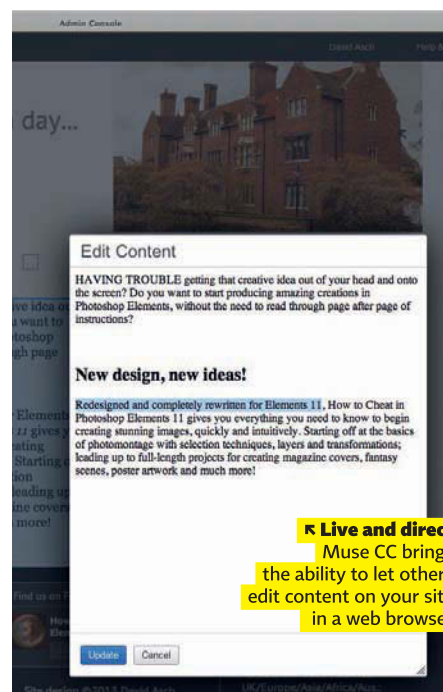
Muse CC gains some important additions to its toolset. The first is the ability to build your page content on layers. Each layer can contain a single item or several. This gives you a great deal of control over the layout, allowing elements to be re-ordered and hidden on a large scale, for trying out different header styles, for example,

or at a more granular level for smaller design changes. Contact forms can now be included even if you choose to host your site away from Adobe's Business Catalyst, previously a restriction that was a major annoyance. The only requirement is that your web host is running PHP, which the vast majority do.

IF YOU DO host your site on Business Catalyst, the option has been added to do in-browser editing. This allows you, or client users of your designs, to change the content in designated sections of the site directly through the browser. It's not a full CMS solution, but it means small changes can be made without site operators having to go back to the designer each time.

Another interesting new feature is parallax scrolling. As the website user scrolls up or down the page, specific events can be

Muse is a visual web creation tool aimed at designers who want to put together sites without coding



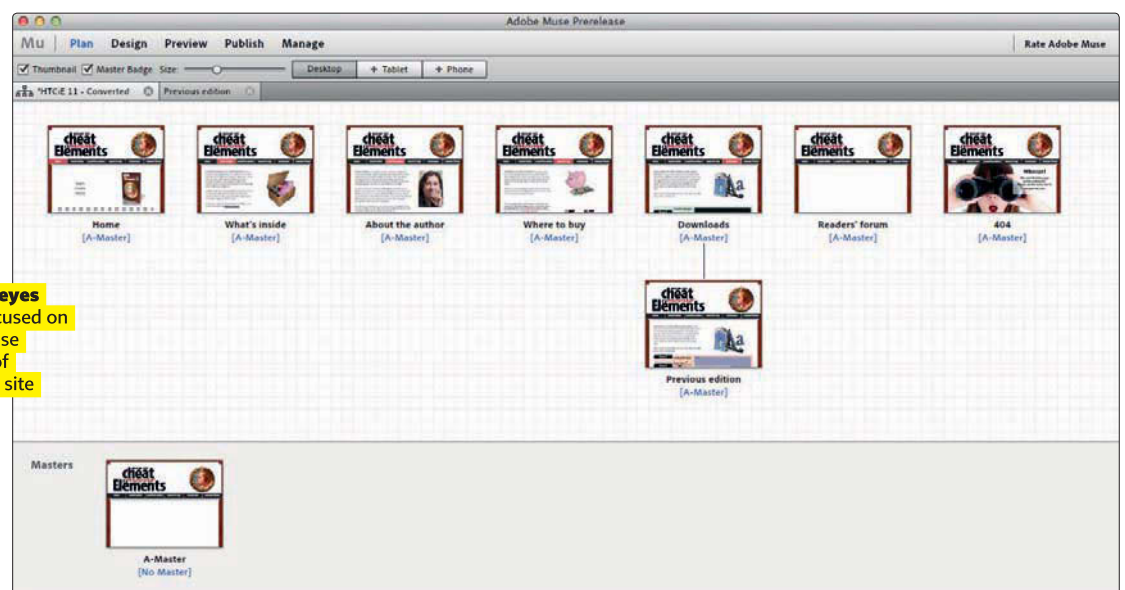
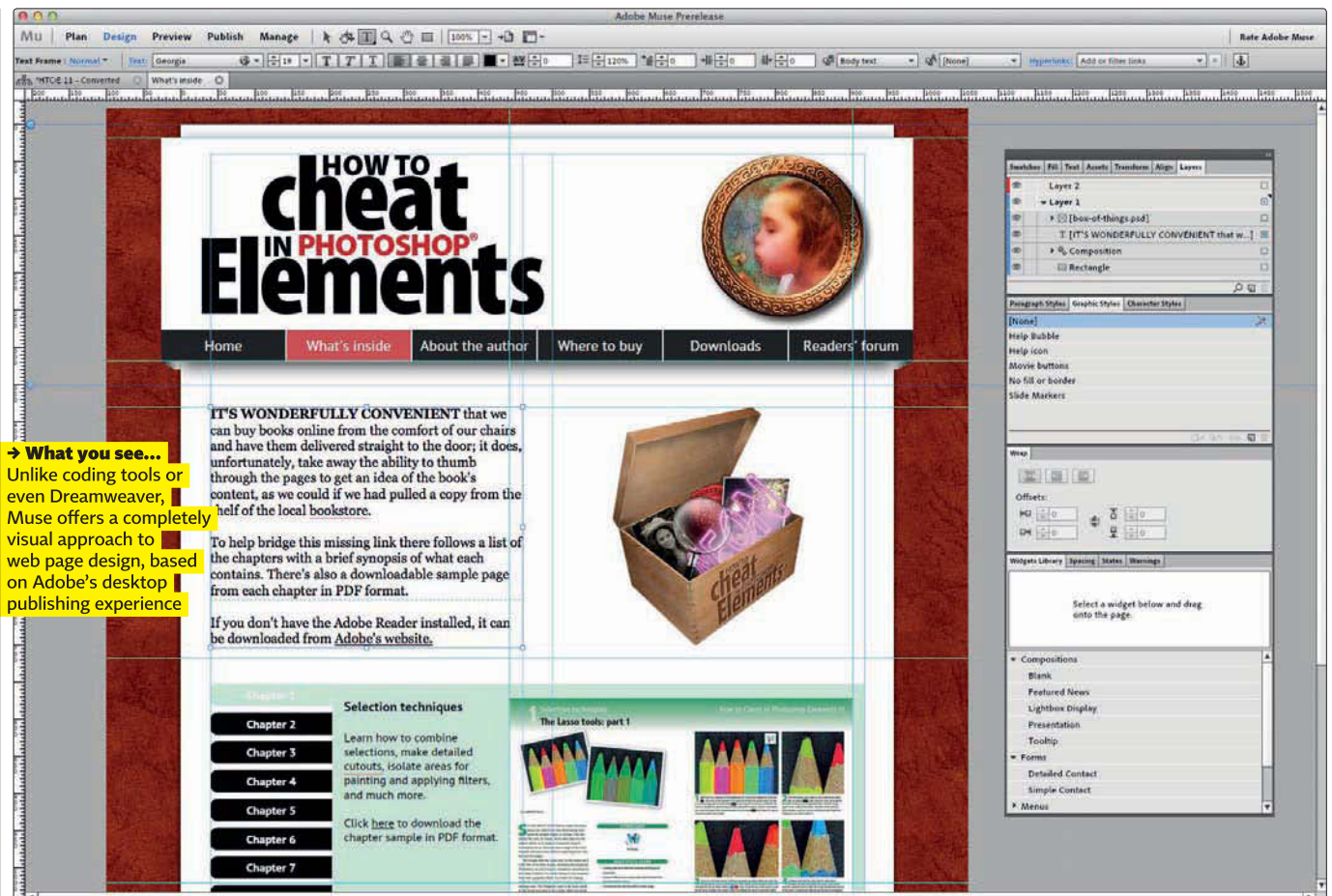
Live and direct
Muse CC brings the ability to let others edit content on your site in a web browser

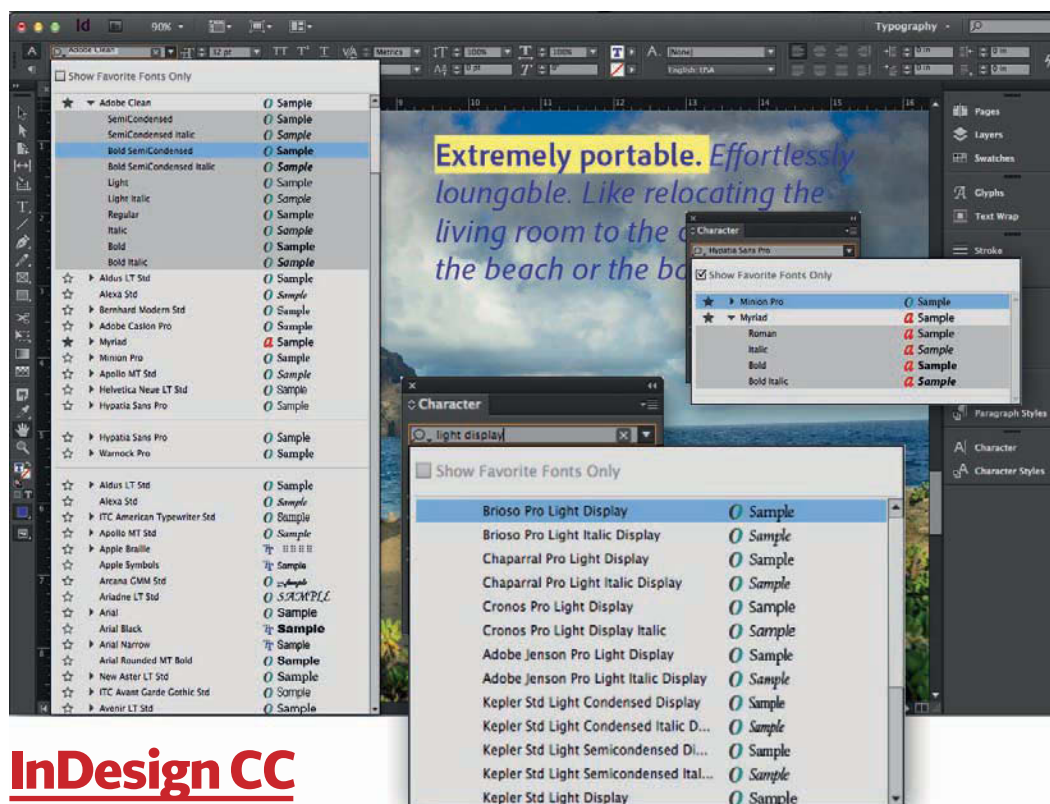
triggered, such as information relating to the content flying in from the edge of the screen.

All this creative freedom is not without its catches, however. The program can become sluggish at times, particularly when building pages based on widgets. For example, adding new content to slideshows that already contain multiple images can leave the beach ball spinning for long periods. The same goes for embedded content such as streaming video from YouTube and Vimeo: there can be a substantial lag after pasting the content while it gets rendered.

We experienced a few instances of design elements not behaving as they should, and there were even a few crashes along the way; fortunately, like InDesign, Muse frequently auto-saves, so very little content was lost. The version we tested wasn't quite finalised, so the bugs may have been ironed out by the time you read this.

Overall, Muse CC is a great tool for putting together richly designed sites with absolutely no need to get your hands dirty with code. You're not going to end up with a site to rival Amazon, of course, but for creatives and small businesses, it fills the gap between a templated out-of-the-box solution and a hand-coded site.





InDesign CC

What we've been waiting for

Retina. According to Adobe, InDesign finally supports 'the high-resolution Retina display on the new MacBook Pro' – 'new' here meaning 'a year old'. Let's not look a gift horse in the mouth, though: when InDesign was omitted from Adobe's list of apps being road-mapped for Retina, users feared it might not happen this year. MacUser staff won't be the only ones who've been putting off buying a Retina MacBook specifically for this – but we'll be waiting to see exactly how good layouts and type look.

What else is new?

Adobe says the whole app is faster, especially when exporting PDFs – though this has wasted little time since it became a background task. Because it's 64-bit, InDesign CC can use more than 8GB RAM, assuming you have that much and you're editing documents that need it (as we write this, with half a dozen documents open, it's using less than 1GB).

Font menus have been tweaked to organise families better and find fonts by weight or style across your collection, for

example by typing 'bold' or 'condensed'. You can also mark and display 'favourite' fonts and work through fonts with the cursor keys, applying each in turn.

Other features relate to Creative Cloud's syncing and sharing capabilities, which had yet to be finalised as we went to press. Finally, InDesign gets the reversed-out grey user interface that Adobe earlier brought to Photoshop. We doubt a dark UI theme is appropriate to a task dominated by white pages, but the tone is adjustable.

Illustrator CC

What we've been waiting for

Oh, where to start? Practical additions to the Graph tool, which hasn't changed in some professional users' lifetimes (we're not exaggerating); an update to the marginally less aged 3D features; type tools that work the same way as in other Adobe apps; we could go on. No, Adobe still doesn't appear to have addressed any of these things.

What else is new?

Faster type handling, more support for imported type and seamless text object conversion. A new Touch Type tool can transform individual characters while keeping them live; the 'touch' part refers to the ability to manipulate glyphs directly

on a multi-touch device such as, er, the touchscreen Macs that Apple has no plans to

invent, or one of those lovely Wacom Cintiq Touch tablets you don't have. You can't do this from an iOS device, but you can import themes from Adobe's re-released Kuler app for iPhone.

As in InDesign, fonts will be easier to find and apply, and you can sync settings between machines. File handling gets slicker, with InDesign-style facilities like unembedding and packaging for output, and it's quicker to place multiple files.

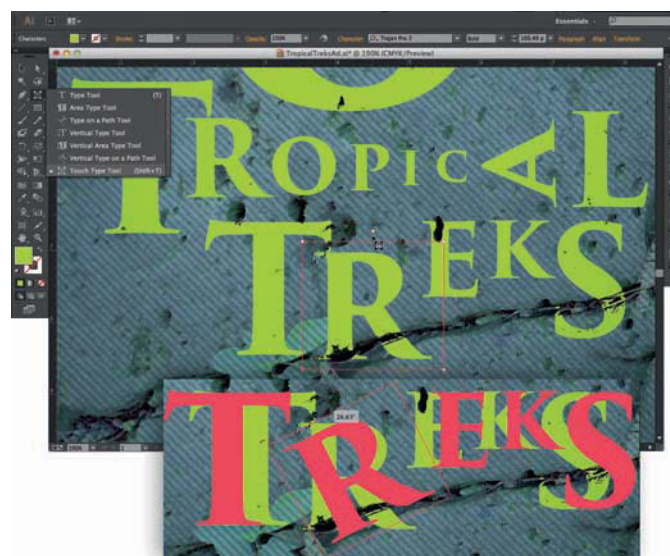
More radical is the ability to export CSS versions of 'icons and patterns', even for a complete logo that includes gradients'. It's the future, kids.

Font of knowledge

InDesign's new font menus make it easier to find the face you want, with pop-down submenus for families and a Favorites list. You can page through fonts, applying each to selected text, to quickly pick a winner. Illustrator gains similar new features

Type casting

In Illustrator, you can use the mouse, a stylus, a connected multi-touch controller (no, not your iPad, sadly) or a Windows touchscreen (cheers) to manipulate individual characters within live text, thus enraging your first-year graphics tutor



After Effects CC

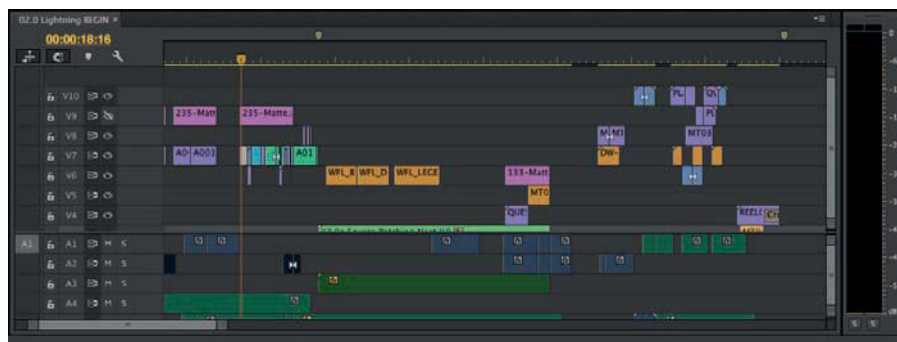
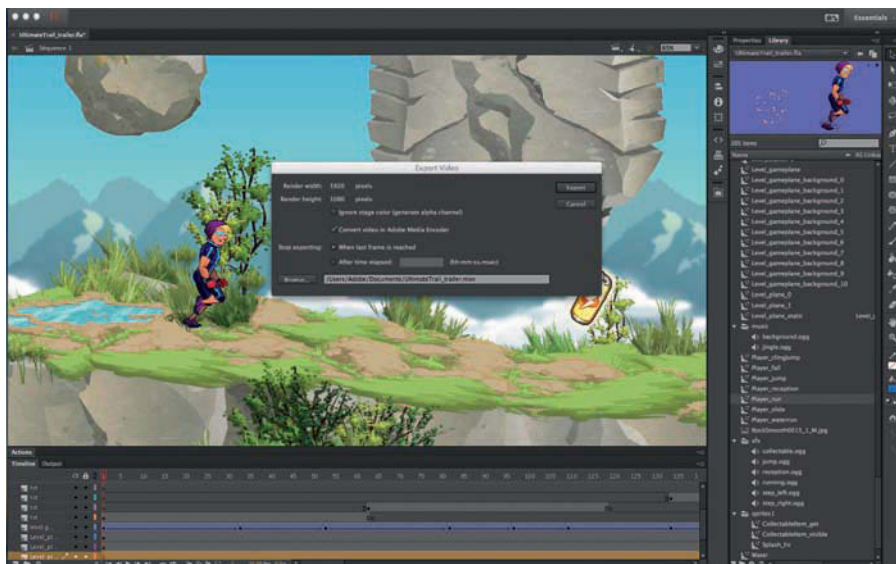
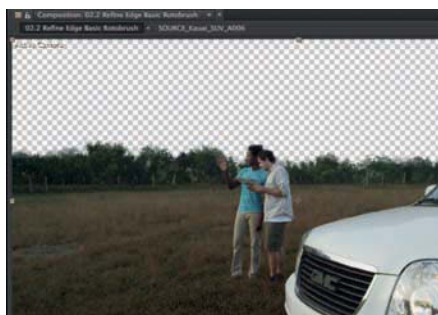
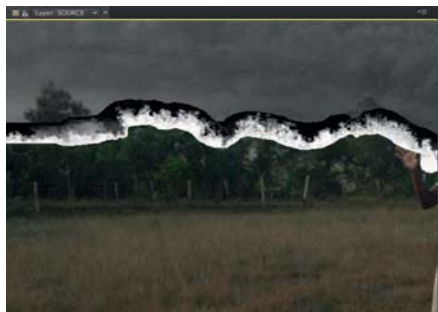
What we've been waiting for

The improvements in performance and integration Adobe has been working on could pay off here. AE CC promises better use of multiple processors and NVIDIA GPUs, and Adobe Anywhere for Video is a potentially interesting remote collaboration tool, although it won't be available immediately and will cost extra. A 'live 3D pipeline' to Cinema 4D (the Lite version of which is included) means you can place objects and scenes unrendered in AE.



What else is new?

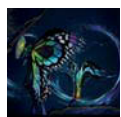
A new Refine Edge tool, Pixel Motion Blur, and upgraded Warp Stabilizer and 3D Camera tracker functions all look useful, and the UI has been 'streamlined' in several respects.



Premiere Pro CC

What we've been waiting for

More native formats, built-in colour grading, faster multi-cam editing and better GPU support are common requests; all are addressed, though we can't yet judge how well. It's ironic that Adobe is adding support for multiple GPUs at a time when Apple can't sell you a machine in which to install them, but with the arrival of a new Mac Pro this could get interesting. The Mercury Playback Engine will also support 'a wider range' of GPUs.



What else is new?

Adobe is touting more integration between Premiere, After Effects and Photoshop and smoother file exchange with Avid and FCP X. The Creative Cloud ability to sync your settings to another Mac will be handy if you use more than one, or flit between edit suites. A modernised Timeline and new shortcuts will help you 'edit more efficiently', says Adobe, and Link & Locate will track down stray files. There are brand new audio mixing and closed captioning tools, and Adobe Story Plus (included with CC) links script metadata to your edit. Oh, and Retina Macs get HiDPI support.

↑ Smooth operator

Premiere gains more of what Adobe calls 'editing finesse' in its CC incarnation, with a fully redesigned Timeline, intuitive track targeting and many new key shortcuts. Paste Attributes let you transfer just the effects you need from one clip to another

← Edge case

After Effects' new Refine Edge tool means 'the end of hard matte lines', reckons Adobe, without the need to green-screen

↙ High fidelity

Flash projects can now be exported as HD video

Flash Professional CC

What we've been waiting for

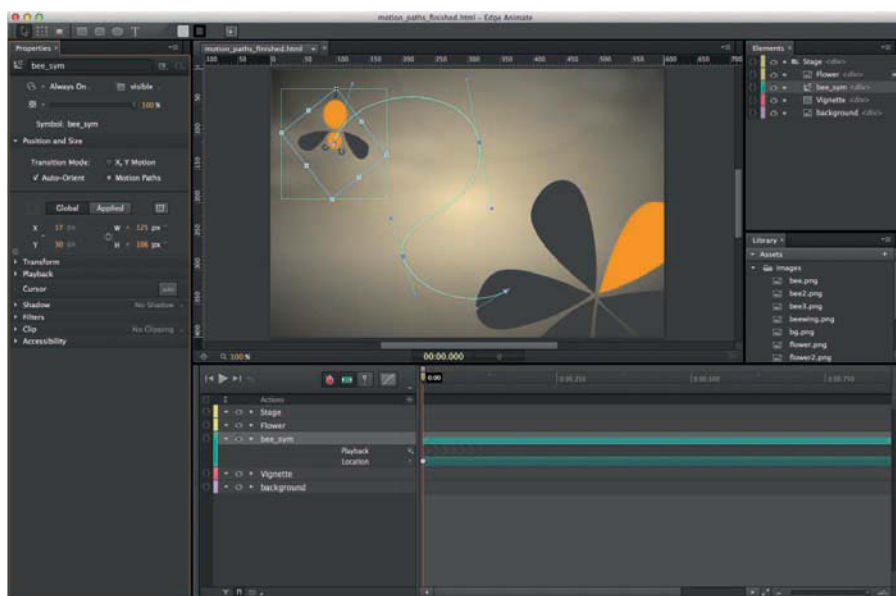
To see if Adobe is still committed to Flash as a content creation tool, if not a delivery platform. For now, at least, it seems so, although the app is ominously relegated to the 'Also included' sidebar of the Creative Cloud blurb. As we'd expect, HTML5 export options are prominent among the advertised features, helping to make Flash Pro, according to



Adobe's Paul Trani, 'a complete authoring tool for the next generation, regardless of your output'. Enhanced support for the open source CreateJS libraries (adobe.com/devnet/createjs/articles/getting-started.html) plays a big part in this.

What else is new?

Quite a lot, by the looks of it. Along with other CC apps, Flash has gone 64-bit and is 're-engineered from the ground up' for speed and efficiency. You can choose between dark and light UI (yawn), the pasteboard is now infinite, and shape drawing and timeline editing are more immediate. Any project can be exported to Full HD, optionally with an alpha channel, and you can test content instantly on connected iOS and Android devices. For Flash's core audience of graphic designers pretending they can code, a brand new Scintilla-based code editor is accompanied by Adobe Scout, which analyses performance and memory use to 'detect potential problems earlier in your workflow'.



Edge CC

What we've been waiting for

The Edge suite of tools has existed in a sort of limbo for quite a while now, trickled into Creative Cloud without ever quite being properly launched as a finished product. At the time of writing, two of its most interesting elements, Edge Code and Edge Reflow, have gained a 'CC' designation while still being labelled '(Preview)'. When they're released, we'll be able to make our own judgements about whether these apps are ready to invest time and effort in, but it would be nice if Adobe itself would decide.

What else is new?

Edge Animate will gain motion paths, for fluid transitions rather than purely linear movement, which should make animations less clunky and enable more elaborate projects. Templates are another addition, making it easier to create, re-use and distribute content, and published runtime files will now be hosted by default on Adobe's CDN (content delivery network), although you can override this and publish locally or to your own server if you prefer. The subtext to all this is that Animate is a potential successor to Flash, and one of Adobe's most important challenges will be to manage that transition.

Edge Reflow is Adobe's visual environment for creating responsive websites that optimise themselves for various screen sizes. Its new features address layouts and workflow: fixed elements and absolute positioning provide more scope for where page components are placed, while 'grouped elements' are, according to Adobe, the beginnings of a style management system. There's also inline text styling, but this adds 'span'

↑ Paths to glory
Motion paths are a major addition to Edge Animate, and the app's similarity to Flash is hard to miss, even if it's not yet clear how this standards-oriented authoring tool will evolve from here

↓ One for all
Dreamweaver looks set to make responsive web design a lot easier to visualise with its Fluid Grid Layout tool. A CSS Designer panel could also make life easier for web developers

elements, something often best avoided from a semantic coding standpoint.

Edge Inspect, which tests web designs on multiple devices, will be 'all new' at the launch of CC, while PhoneGap Build, the much-maligned enterprise-focused push-button mobile app creation tool, apparently won't; it doesn't even get a 'CC' suffix.

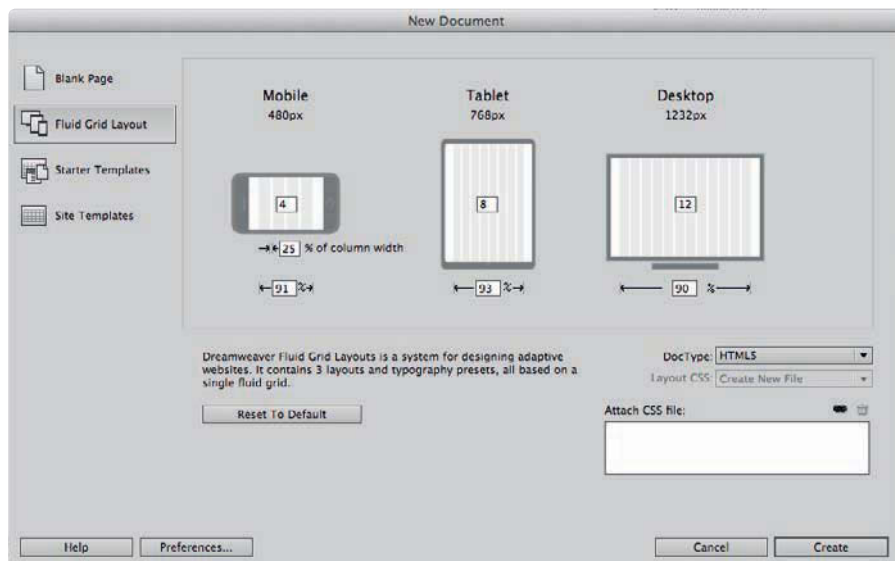
Dreamweaver CC

What we've been waiting for

A return to relevance. Dreamweaver is increasingly the choice of corporate HTML monkeys rather than cutting-edge web designers, and that's a trend Adobe is unlikely to reverse now. Still, the new Fluid Grid Layout looks an interesting approach to responsive design (adjusting web pages automatically for different screen sizes and shapes). The Edge Web Fonts Library, via Typekit, gives you a lot of new scope for typography, although the basic licence included with your Creative Cloud subscription won't cover high-traffic sites.

What else is new?

The CSS Designer panel, for building and editing CSS properties, resembles similar functionality in browser developer tools, listing media queries, item selectors and 'computed' CSS for a selected element. Dreamweaver's implementation looks more user-friendly than most, and Adobe says you needn't know an associated element's class nor switch to code view to edit its CSS. It remains to be seen how clean the code output is, but demos look promising. Code View has 'improved code hinting and syntax colouring' and now uses Adobe's Source Code Pro font (free, launched nine months ago) to 'make differentiating similarly structured characters, such as 1 and l or 0 and O, easier'. Wh1ch is n!ce. You can drag and drop jQuery UI widgets to 'banish boring buttons and generic icons'. OK, we're struggling. Across the app, though, Adobe promises a simpler, smoother interface with more contextual menus.



Alternatively...

Although nobody else has a suite of creative apps as credible and comprehensive as Adobe's, that's not to say the individual products have no rivals. Apple itself offers direct and popular alternatives to several – at lower prices. But it's smaller software vendors who are increasingly taking on the established leader.

VIDEO

Final Cut Pro X is a cheaper and equally powerful alternative to Premiere Pro, and Apple has plugged many of the gaps that put off pro users at its launch. Its Magnetic Timeline will just take a bit of getting used to compared to the track-based approach of Premiere and the earlier FCP 7. Bought from the Mac App Store, FCP X can be installed on any Mac you use, or you can install a single copy on a Mac that's shared by multiple users. Unlike Adobe's self-validating apps, FCP X won't actually stop you installing one purchase on every Mac in your studio, but you'd be breaking the licence agreement. Creative Cloud only allows two installs on Macs or PCs allocated to the same user.

EFFECTS

The main competitor to After Effects on the Mac is Apple's Motion. Not only is it stupidly cheap at £34.99, it's also easy to get the hang of. You get a range of high-quality titling, effects and filters as well as the very useful Behaviors and Replicator tool, all with real-time playback. A shared render engine allows Motion projects to play back in FCP or FCP X without rendering, but FCP X won't let you go the other way, as you can with Adobe's Premiere Pro/After Effects Dynamic Link roundtrip route.

Apple Color is no more, its features essentially rolled into FCP X, so the main competitor for Adobe SpeedGrade is Da Vinci Resolve. Its latest incarnation, now being devel-

oped by Blackmagic Design, is both Mac-friendly and Retina-ready. Resolve offers a straightforward five-step path from ingest to delivery, as well as XML-based workflow integration with FCP and other editors. At £665, the full version is cheaper than SpeedGrade CS6, but Resolve Lite, which has surprisingly few limitations, is free.

DRAWING

There's nothing quite like Illustrator (Adobe having long since killed off FreeHand), but there are other drawing apps. The current favourite is Bohemian Coding's Sketch, a beautifully presented app that's arguably a better choice than Illustrator for web or UI design. It maps effects to CSS, has simple @2x export for Retina support, and provides tools that help you work fast.

Inkscape, an open source vector editor, offers much of the functionality of Illustrator for free, but runs under X11, which is no longer supplied by Apple, making it a bit of a hassle to get installed as well as painfully cluttered.

Indeeo Draw (see MacUser, June 2013, p98) runs on both Mac and iPad, which may be handy. Pixelmator (see below) now has vector drawing too.

AUDIO

Music is one area Adobe doesn't cover, but the Audition audio editor is a useful adjunct to Premiere. Since Apple dropped Soundtrack Pro, there's no equivalent for FCP X: Logic Pro is affordable,

but functionally it's overkill for most sound-to-picture or audio cleanup jobs, and GarageBand isn't ideal for this kind of work.

For multitrack wave editing with good video support, you could look at Steinberg's Wavelab Elements 8, an entry-level but very capable version of its mastering package. The popular Sound Forge Pro has recently been ported to the Mac, but currently lacks some core functionality.

Amadeus Pro or even the free Audacity will let you play with audio processing fairly competently. You'll need to be prepared to shuffle your work between apps a bit.

PHOTO EDITING

First of all, don't forget Lightroom CC can still be bought outright, even though Photoshop CC can't. It's often better than Photoshop for pure photography work. Apple's Aperture is a good alternative, and also reasonably priced, though it's unclear how committed Apple is to it.

Pixelmator has had something of a meteoric rise as a Photoshop alternative; despite being a slimmer app, it does most of the things most users will need daily. There are layers and blend modes (though not layer effects), and the latest version adds vector graphics in a separate Vectormator environment, giving you two apps for the low price of one.

Acorn's filters are applied live and can be chained, so you can adjust almost anything later; it's a decent choice

for basic photo manipulation. Don't listen to anyone who recommends the GIMP: attempting to use it is like listening to fingernails being dragged down a camel designed by a committee.

Finally, remember Adobe still sells Photoshop Elements. It may go against the grain to use something aimed at mere consumers, but it covers 90% of the features you'd actually use in Photoshop. CMYK mode and the Bézier pen are missing, traditionally ruling it out for print prep work, but even print designers may not need those today. Do note that Camera Raw is missing.

PAGE LAYOUT

Though users of one tend to dismiss the other, QuarkXPress is a completely modern and credible alternative to InDesign, and not as expensive as it looks if you keep your eyes open for special offers or dig out an old version to upgrade from. BeLight's Swift Publisher, though it lacks professional credibility, is cheap and well worth a look. Apple's Pages may satisfy some requirements, or iBooks Author for digital publishing.

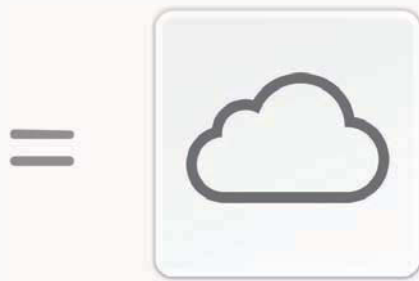
PDF EDITING

PDFpenPro (see p104) is at least as good as Acrobat Pro for most purposes other than prepress, and very affordable. Remember PDF export is built into the Mac's Print dialog, and OS X's Preview can rearrange or remove pages in a PDF and add annotations. ■

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I T U N E S S O R D

LOVE IT OR hate it, we Mac users tend to rely on iTunes to manage and play our music, movies, TV programmes and podcasts. Some of us even entrust it with eBooks and apps, although we can think of very few reasons why you'd ever need to download apps to iTunes these days. Brrr.

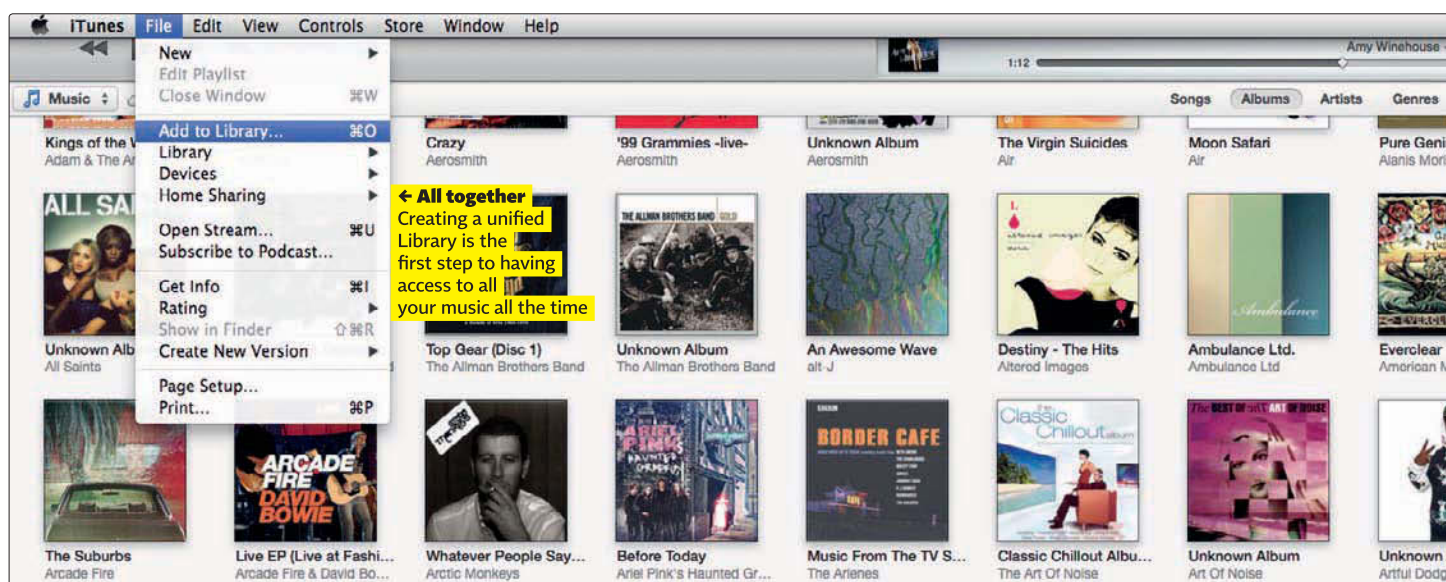
The point is, no matter how you use iTunes and whatever media you use it for, it's likely that you do so on more than one device.

Even if you have a central household Mac that doubles up as a jukebox or movie player, you'll likely also have iPhones, iPads and MacBooks which are also employed to entertain you from time to time. If you regularly access your media from different devices, you'll know what a pain it can be.

While features like Home Sharing allow you to access the iTunes library of one Mac from another Mac, Apple TV, or iOS device, many of us have media scattered across multiple machines, making finding it, let alone playing it, tricky. iTunes Match alleviates some of the problems, but comes with its own set of caveats. You need to keep up the paid-for subscription; you need your internet connection to be working; and it only works for music.

In this article, we'll show you how to corral your music, movies and TV programmes, wherever they currently reside, knock them into shape, and put them somewhere that will allow you to access them from any other device on your local network, without the need to have another Mac switched on and booted, and safe in the knowledge that every one of your media files is available and easy to find.

We'll also introduce several options for streaming your media over your home network, so you can sit comfortably on the sofa armed only with an iPhone – or whatever Apple device you fancy – and play music in any room in the house. →



1. Round up your media

THE FIRST STEP is to get all your music, movies and TV programmes in the same place. The simplest way to do that is to use a portable USB-powered hard drive. USB 3 will be faster if your Mac supports it; if it has FireWire, you could use a FireWire drive. You could use Thunderbolt if you really wanted to, but that would probably be overkill. The capacity the drive needs to have will be dictated by the size of your various media libraries, but if you're going to buy one for the purpose, it's not worth getting anything smaller than 1TB. A 2TB drive can be bought for around £100.

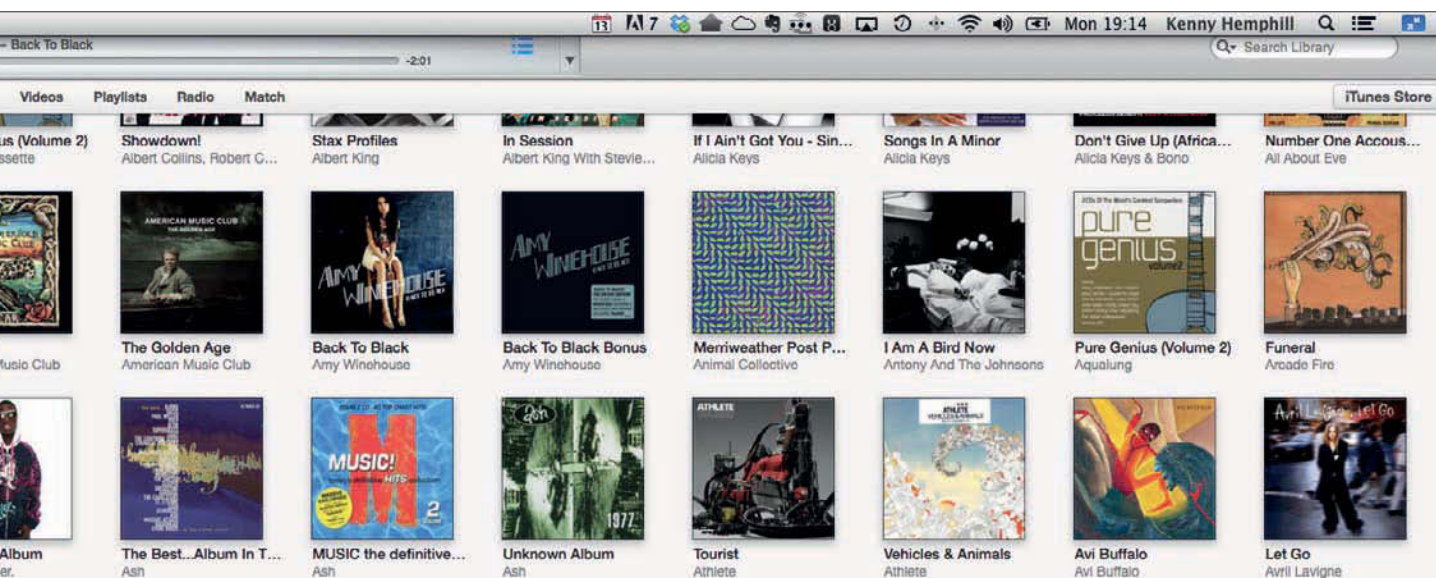
Before you begin, go to iTunes on your main Mac, click Store, then click Purchased at the right of the window. Click the 'Not on this computer' button. That will display all the Music, Movies, and TV programmes you've bought on iTunes, from any device. Click on each item in turn and click the cloud icon to download it. TV series and music albums can be downloaded in one go by clicking Download All. If you're downloading TV or movies, make sure to check the 'Download HD version' box at the bottom

of the screen if you want the high-definition version.

Start with the Mac that houses most of your music. Navigate to its iTunes Media folder; if you're not sure where that is, open iTunes, go to Preferences, click Advanced, and the folder path will be displayed at the top of the window.

Create a folder on your empty external drive, give it a name that makes sense – maybe 'Media' – and drag everything from the Mac's iTunes Media folder into it. You may also have music and video files scattered elsewhere on your Mac that you want to transfer. Have a look in the Music and Movies folders in the user accounts whose





2. Clean it up

media you want to transfer, and copy to the portable drive anything that's there. Don't worry about duplicating what you've already copied.

If you have additional hard drives attached to the Mac you're dealing with, don't forget to search those for .mp3, .aac, .mov, .mp4 and .m4v files and copy those all across to your fresh drive. If you have lots of music scattered around, you could use Dupe Away (macroplant.com/dupeaway) to identify music files that aren't in an iTunes Media folder. It costs \$12.95 (about £8.50), but we'll use it again later when we come to culling duplicate files.

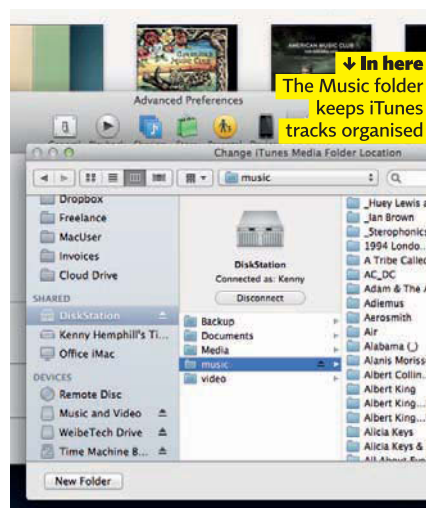
Once you've done this on one Mac, repeat the process on them all, copying the media files from each to the Media folder on your portable hard drive. By downloading your purchased media from iTunes and copying the contents of every iTunes Library from every machine, you'll be sure to capture everything that's also stored on an iOS device, since the only way to get media onto an iOS device is by syncing with iTunes or downloading directly from Apple's iTunes cloud servers.

YOU'LL NOW HAVE a bunch of files in a folder on your portable hard drive. The next stage is to organise them, remove duplicates and, optionally, add missing artwork and tidy up metadata. Connect the hard drive to your main Mac, hold down the Alt key and launch iTunes. You'll be asked to choose an iTunes Library or create a new one. Choose Create Library, give it a name, and save it to your Music folder. You might also find it easier to switch off Show Music in Cloud in the View menu, so that you only see locally stored media. Open Preferences in iTunes and click Advanced, then click Change next

to the window which shows the location of the iTunes Media folder. Navigate to the folder on the external drive. Make sure you've checked 'Keep iTunes Media folder organised', but uncheck 'Copy files to iTunes Media Folder when adding to Library'. Click OK. iTunes will now build a new Library from the media on your external hard drive. The music, video and TV programme files will stay where they are: only the Library XML file will be stored on the Mac's hard drive.

When iTunes is finished – which could take some time, depending on the size of your Library – your iTunes window will be populated with track names, album titles and artists. And the files on the external hard drive will have been organised into folders according to iTunes' file structure.

Before we move to the next stage, it's worth spending some time cleaning up the Library. The first job is to remove duplicate files. When iTunes 11 launched last year, it lacked the Show Duplicate Items feature. Fortunately, it was soon restored, so if you're running iTunes 11 and don't see Show Duplicate Items under the View menu, you should update (Check for Updates in the iTunes menu) before going any further. You could now go to View and click Show Duplicate Items, but that would display remixes and alternative versions as well as true duplicates. Instead, hold down Alt and click View > Show Exact →



→ Duplicate Items. Now you'll only see actual duplicates. Go ahead and delete one version of each item found. When a dialog box pops up, choose Move to Trash.

That method works well if you only have a few duplicates. If you find hundreds, it becomes laborious. In that case, there are a number of apps that can help with your music. TuneUp (tuneupmedia.com) is one: besides allowing you to identify and delete duplicates, it lets you find missing cover art and 'clean up' tracks with missing information, such as title, artist, or album. We found, however, that even the most recent version, which is supposed to be compatible with iTunes 11, failed to identify duplicates that iTunes itself displayed, and threw up false positives instead. In short, we wouldn't rely on it and it's not worth investing in if you don't already have it.

A better option is Dupe Away, which we've already mentioned. In our tests it did a much better job of identifying duplicates. You can choose to delete all the duplicates with one click, or select them individually. It also lets you tidy up playlists that have the same song more than once, and get rid of references to missing tracks (not relevant to this task, but may help in the future.)



Having sorted out your duplicates, you can deal with Cover Art. One of iTunes 11's most innovative features is the way it displays albums using colours automatically taken from the album cover as a background to the track names, with the cover itself displayed to the right of the track listing. Cover Art is also used in iOS' Now Playing window and on Apple TV, so if you're going to get all your media kit working correctly, it's important to make sure it's displayed.

Switch to Album view in iTunes and look for albums with missing covers. Right-click on them and from the contex-

tual menu select Get Album Artwork. That should find the artwork online, but it won't succeed for every album. If you still have lots of missing album art, a third party tool called Cover Scout can help. It's not cheap, at €23.99 (about £20.50), but makes it very easy to search Amazon and Google for album covers and add them to those in your Library that have no covers. You can choose to exclude compilation albums from the search, and each cover image is rated to give you an idea of image quality.

Equinux, maker of some of our favourite media tools, has another that can help with the next task: adding missing information to songs. Song Genie scours your iTunes Library and finds tracks with missing song titles, artists, and album names and allows you to edit them. If you don't know what they are, it will attempt to identify them for you using the track's 'acoustic fingerprint.' It can edit any ID3 tag, will find lyrics for songs, if you want, and also displays the file size of album art so you can identify which covers are likely to be displayed poorly on-screen. It's also €23.99 (£20.50), so you'll probably only want to buy it if you're a completist or have lots of songs with missing information.

3. Move it

NOW YOUR ITUNES Library is ship-shape, it's time to move your media. Note that it's now the referenced files we'll be moving, not the Library file itself, which stays in the Music folder in your Mac's user folder.

We need to put your music, movies, and TV shows somewhere where they can be accessed from any device on the network. That could be a hard drive connected to a Mac. But that would mean having that Mac up and running all the time or losing access to your media until you power up again, which may not be convenient, particularly if it's a MacBook.

The solution we're focusing on is a NAS (network-attached storage) drive. By putting your media onto a NAS, you can make it available over the network without anything else having to be powered up; it's a computer in itself. We've chosen Synology's DS213j for the job because it has an iOS app that allows you to play music directly from it and stream it via

AirPlay. Many other options are available. Setting up the DS213j is straightforward, but other NAS boxes work differently, so read the blurb for yours and do whatever you need to do to mount a volume in the Mac's Finder. The next step will be dictated by the NAS you're using. Synology automatically creates music and video folders



when you enable the media player apps on the NAS. If you have a similar feature, do that first and use the folders it creates.

Quit iTunes on the Mac, then re-open it while holding down the Alt key, and create yet another new Library in your Music folder. Open iTunes Preferences, click on Advanced and Change, and this time tick 'Copy files to iTunes Media folder when adding to library'; then navigate to the folder you created on the NAS.

Now, in iTunes, go to File > Add to Library, navigate to the Media folder on your portable hard drive and select everything in it. iTunes will then add that to the new Library and, in doing so, copy it to the NAS. That'll take a while, even over Gigabit Ethernet, so you may want to leave it overnight. Once your media is on the NAS, you can disconnect the portable hard drive, and ideally keep it safe as a backup.

The DS213j, like most NAS boxes, has a built-in iTunes server. So if you go to any

Synology DS213j



Put your media on a NAS and you can make it available over your network, even to iOS devices

other Mac on your network and launch iTunes, the NAS will appear in iTunes' sidebar (which you'll need to enable in the View menu by clicking Show Sidebar) under Shared Libraries. You could just click on it and play music from there, but if you want to create playlists, you'll have to do it through the NAS box's web interface. This means each Mac will share the same playlists; if they belong to different people, a better option is to repeat the process just described on each Mac on your network.

That is, on each Mac, mount the NAS, open iTunes while holding Alt, and create a new Library; then go to File/ Add to Library and select the Media folder on the NAS. Make sure 'Copy files to iTunes Media folder when adding to Library' is not checked this time. iTunes will now build a Library from everything in the NAS' Media folder, but leave the files where they are.

With that done on every Mac, you can create playlists on each Mac and they will

Synology's latest DiskStation is aimed at precisely what we've outlined in this article. It can house audio and video and replay it in iTunes and on iOS devices, with AirPlay support; and it can play back media through a web browser. It also works with Time Machine, and has iOS apps to access documents on the drive from your iPhone, iPod touch or iPad. You don't even need to be on the same local network; a little fiddling with your router settings, and you can access the DS213j from the internet. Or use QuickConnect, which routes via Synology's servers, and you don't even need to set up your router.

A NAS is a computer, so it needs an operating system, and Synology's latest is DSM 4.2. This allows you to plug a supported TV tuner into one of the two

USB 2 ports and record programmes; it has support for IP cameras; and there's a direct-download BitTorrent client. You can also plug in a USB Bluetooth adaptor to transfer files. The DSM 4.2 user interface is very easy to navigate. Services like the audio and video player need to be installed as apps, but that's straightforward, though we did find designating and indexing folders a little confusing. The audio player and its companion iOS app coped with everything except FairPlay protected files (Apple doesn't protect iTunes music now), but the video player wouldn't play .m4v or .divx files, though it was fine with .mov, .qt and .mp4.

In performance tests, video streamed smoothly and files copied quickly. Even with a video playing and streaming to an iPhone with audio punted to an AirPlay speaker, there was little hint of lag. The web-based video player recognised AirPlay devices on the network and our Smart TV, which has DLNA. The DS213j can wake when LAN activity is detected, which is very useful. The documentation could be better: we were unable to find a list of supported video formats.

As a NAS to network your media, a Time Machine backup device and a general file server, the DS213j is excellent.

£169.95 inc VAT from shop.bt.com



only appear on that Mac. Now you need to make sure that the Media folder on the NAS mounts every time you start each Mac. To do that, open Systems Preferences, go to Users & Groups, click Login Items, and navigate to the folder on the NAS where your media is stored. It will now mount every time you restart.

There's one issue left to resolve: how do you ensure that when you add media to iTunes on one Mac, it's automatically added on every other Mac?

If you exclusively use the iTunes Store to buy music and movies, you won't have to

worry – iTunes in the Cloud will take care of it. Most of us don't stick to that one source, however. And while there are utilities that would allow you to sync changes in iTunes Library files between Macs, that has the potential to get messy. The simplest solution, is each time you add new media on one Mac, to go to the other Macs and use File > Add to Library to add them to iTunes.

HOLD ON, THOUGH, before you embark on this exercise, because you may be able to avoid it. If you subscribe to iTunes Match (£21.99 per year from apple.com/uk/itunes/itunes-match), you can skip all the steps using the portable hard drive. Just go to each Mac and click Store > Update iTunes Match, making sure you update your main Mac last. Then, on your main Mac, quit and re-launch iTunes, holding down the Alt key. Create a new Library as described. Go to Preferences, point it at the folder on the NAS where you want to store →

→ your media, and tick the 'Copy files to iTunes Media folder when adding to library' box. Go to File and click Add to Library, and select all the files in the Mac's iTunes Media folder.

There's one last piece in the jigsaw. Files that were on other Macs but not your main Mac will have been added to iTunes Match, but not yet downloaded to your main Mac. Thus, they won't have been copied to the NAS.

Sadly, there's no way to tell iTunes to download 'everything from iTunes Match that doesn't already exist in my iTunes folder'; 'Check for available downloads', for example, only looks for purchases that haven't yet been downloaded at all. So you'll need to manually check for and download any tracks that haven't yet been moved to this Mac.

Note that this iTunes Library method won't copy movies or TV programmes from other Macs, only music, so you'll need to do other media manually. This isn't usually too much hassle, because most people have thousands of tracks and only dozens of movies. But it would be nice if Apple offered proper media management for them all.

4. Play it

GETTING SET UP to stream audio conveniently and at high quality around your home needn't be hard or expensive, and if you enjoy music it's well worth the effort. It's impossible to discuss audio streaming without touching on high-end products such as Sonos, but Apple's AirPlay (originally named AirTunes) offers most of the features for a fraction of the price, particularly for households with iOS devices.

The cheap way

AirPlay does a complicated job in a simple way, streaming media from an Apple device to a receiver. It now includes screen sharing – for example, from an iPad to an Apple TV – but it also makes it possible to build a multi-room audio-only system for under £100 per room.

The simplest approach is to get hold of a handful of AirPort Express wireless routers. These hockey puck-size devices pack a number of tricks: 802.11b/g/n wireless, two

10/100 Ethernet port, you can cut the price almost in half by hunting down an original AirPort Express on eBay. There are plenty about. Streaming audio isn't hugely bandwidth-hungry, so the sacrifice could be worth it as long as your wireless range is adequate.

The cheapest way to get things working from there is a pair of 2.1 powered speakers; you can pick up a reasonable pair of Logitech LS21s for under £30. Alternatively, you can pipe an AirPort's audio to any proper stereo or amp with an appropriate input.

Out of the box, AirPlay does a lot. You can give each of your AirPort Express routers descriptive names ('Living room', 'Office', and so on), and choose a router to stream audio to from an iOS



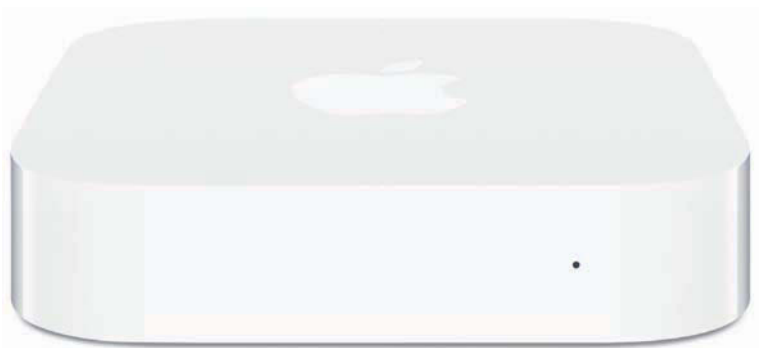
B&O's BeoPlay A8 is a spectacular AirPlay audio dock with 5in woofers and 35W tweeters

wired Gigabit Ethernet ports, a USB port for connecting a printer to a network, and a 3.5mm jack, which can produce an analogue or optical audio signal, depending on what you plug it in to. This flexibility gives both dabblers in audio streaming and dedicated audiophiles plenty of options, and the best bit is the price: a brand new AirPort Express will set you back a shade over £70. Bargain hunters will be able to save about a tenner on a current-generation second-hand AirPort.

Alternatively, if you can put up with mere 802.11g wireless and a single

device: just look out for the AirPlay icon in any audio app. Alternatively, double-pressing the home button on an iOS device and sweeping to the left brings up playback controls. If an AirPlay device is on the same network as your iOS device, you'll be able to stream all audio to your speakers.

The main drawback at present, compared to Sonos, is the lack of proper multi-room support. Currently, iOS devices can only stream audio to a single AirPlay target, so you can't have true multi-room



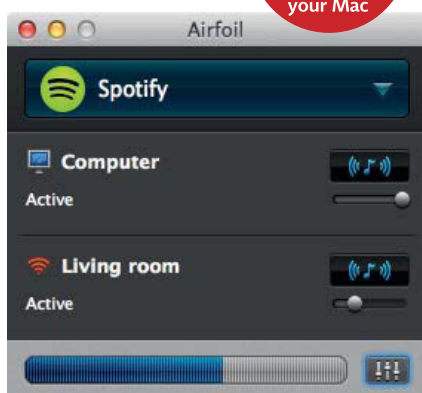
Pair with any set of active speakers for easy wireless audio

AirPort Express packs a number of tricks, including a 3.5mm jack that can output analogue or optical digital audio



Shown at actual size

Play from one source to many AirPlay-ready devices via your Mac



audio, and you can forget about playing different songs in different rooms. The story's a little different from iTunes running on a Mac: you can play songs in your iTunes library to multiple AirPlay devices.

If you want to play music on an AirPlay device without using iTunes, you need Airfoil (rogueamoeba.com/airfoil). This £20 Mac app intercepts audio from virtually any app – Safari, Spotify, iTunes and QuickTime are included, but adding others is easy – and streams it to as many AirPlay devices as you like from a Mac. Think playing BBC's iPlayer radio on your office Mac and in the kitchen, for example – perfectly synced. The ability to select a single app to stream audio from means your Mac won't transmit system sounds to your kitchen.

Airfoil can even help those who don't want to invest in an AirPort Express: the free Airfoil Speakers Touch app is available for iOS and Android devices, and makes a handset or tablet a target that can be streamed to from Airfoil's desktop app. If you want to stream different audio sources

to different AirPlay devices, you can run more than once instance of Airfoil just by duplicating it in your Applications folder.

The fancy way

As we've seen, AirPlay at its most basic involves an AirPort Express and a set of budget speakers, but it's possible to spend much, much more on music streaming. If you want to stick with Apple's system, a number of dedicated devices support AirPlay, from standalone speakers with integrated wireless to full-blown stereo systems from high-end manufacturers. Philips' diminutive Fidelio SoundRing (£140) sits at the budget end of the market - the 21cm-high speaker packs four 16-watt speakers and, for those without the urge to install AirPlay devices throughout their →



Sonos is generally regarded as the ultimate option in smart wireless audio



← **Cloth ears**
The Jongo S3, from Pure, enables multi-room audio when used with Pure's own app or streaming service



Philips' diminutive Fidelio SoundRing has four 16 watt speakers, yet can run on batteries

house, will run on its internal batteries for up to three hours when connected to an AirPlay network.

There are plenty of premium brands leaping on the AirPlay bandwagon, too. Bang & Olufsen's BeoPlay A8 (£1,000) is a spectacular piece of audio furniture; its detachable docking station still has a 30-pin connector, not Lightning, but that has no impact on AirPlay, and with a pair of 5in, 70-watt woofers and two 35-watt tweeters, it sounds fantastic. Alternatively, for those replacing an entire hi-fi, Harman Kardon's 5.1 3D Home Theatre System (£1,249) is an AirPlay-compatible set including five satellite speakers, a dedicated wireless sub-woofer and a Blu-Ray player, allowing you to sort out your entire home entertainment system in one go.

There's no doubt you'll spend more on a product with integrated AirPlay than on assembling your own AirPlay system; the end result will be neater, but whether you're getting better quality sound or

more features depends on the model you pick. For those with a knack for tidy home networking, a set of separate powered speakers will offer as much bang per buck as a dedicated wifi hi-fi, but won't offer the wow factor of, say, B&O's kit. If your budget is under £200, cobbling your own system together will offer very similar results to buying a cheap dedicated unit.

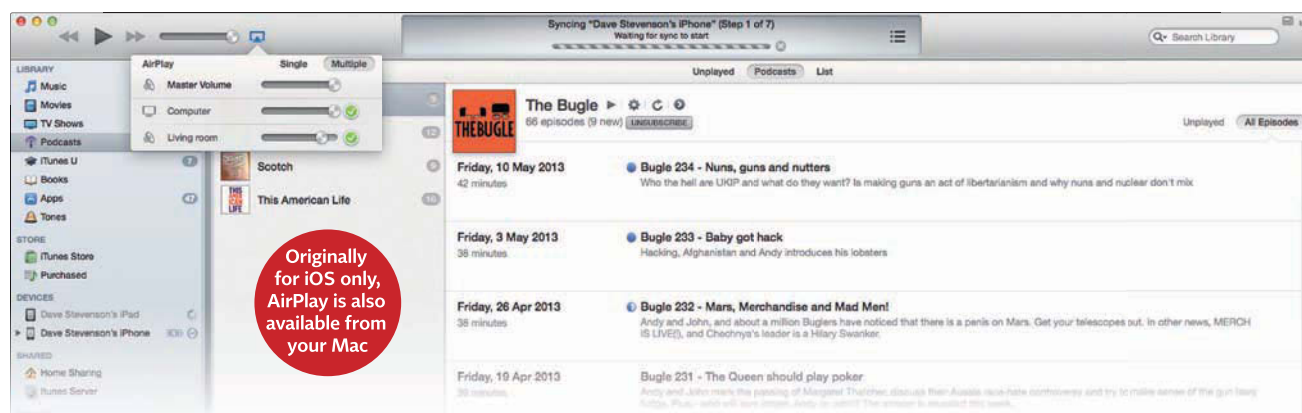
AirPlay alternatives

AirPlay's integration into high-end stereos definitely adds to their appeal, but there's still plenty of room for non-AirPlay speakers. Some are more flexible than AirPlay, others less. Pure's Jongo S3 (£170) allows multi-room listening from an iOS device or Mac, but only via Pure's own Connect app or Spotify-alike streaming service.

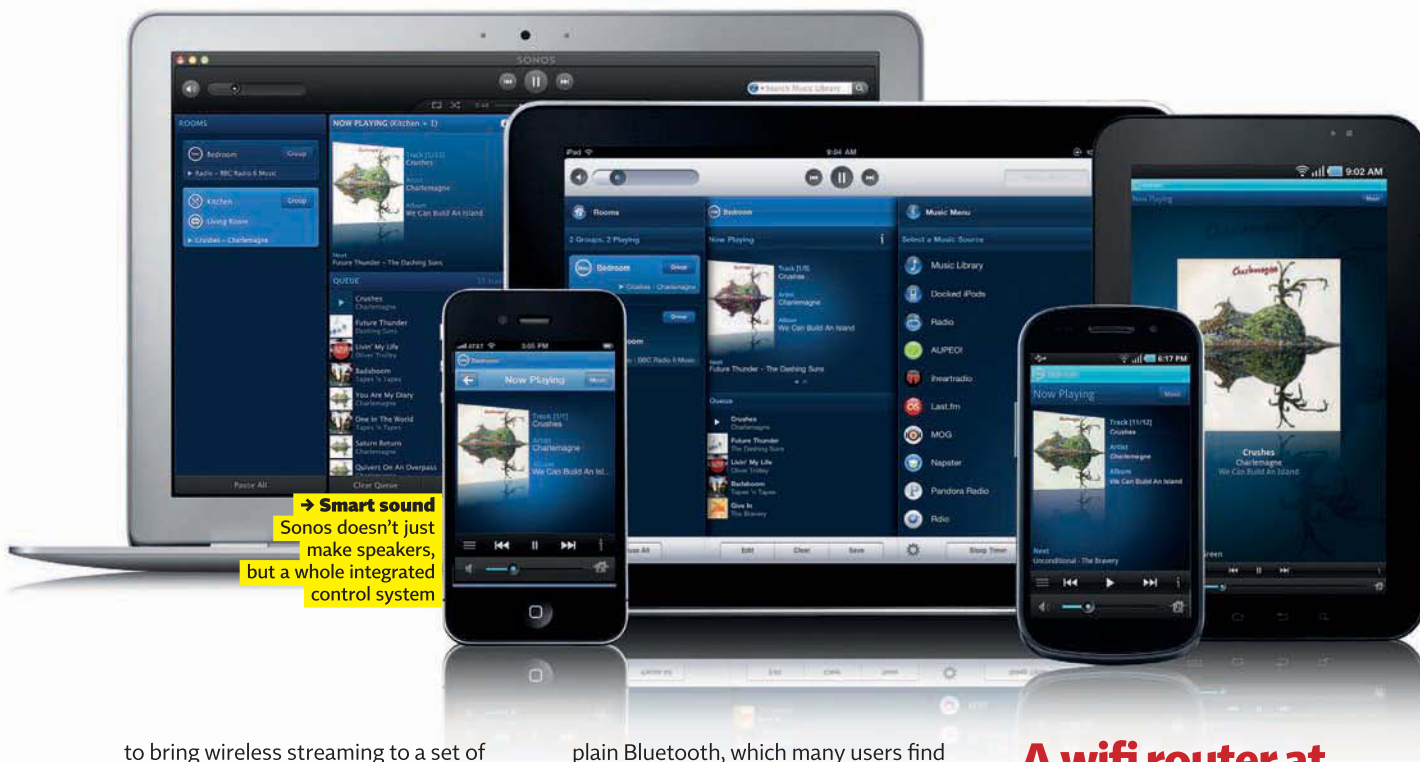
The company casting a shadow over the whole scene is Sonos. Since 2005, its system has been king in wireless audio, and while it'll certainly cost you more than an

AirPlay system, the added features are well worth the money. Sonos at its most basic is the Play:3 (£259) music player, to which you can stream music straight from an iOS device, which includes compatibility with an iTunes library and with Spotify. The need for extra cash starts almost immediately, though: the Play:3 doesn't work wirelessly out of the box. You need to either connect it physically to a router, or connect Sonos' £39 Bridge to your wireless router to start Sonos' proprietary wireless network.

However, once you've got Sonos running wirelessly you can do a huge amount. For example, you could attach the Sonos Connect (£279) to your home theatre speakers and have a Play:3 in the kitchen. Sonos will allow you play the same content on both simultaneously, or you could play one song in the living room while listening to a podcast in the kitchen – something that's impossible with AirPlay. You could also add the Sonos Playbar (£599) to live under your TV, or the Connect:AMP (£399)



Originally for iOS only, AirPlay is also available from your Mac



to bring wireless streaming to a set of unpowered high-end speakers.

The expandability of Sonos is unparalleled, and the quality of the company's components is beyond reproach. A fully-fitted Sonos house will make you the envy of the neighbours – but bank on spending £1,000 or more to get it up and running.

Bluetooth

The most basic form of digital wireless audio streaming is Bluetooth. Its appeal is easy to grasp: it's common to almost all devices, it draws little power, and it's built specifically for audio. What's

more, it's cheap – you can get Logitech's Bluetooth

receiver for £25, with 3.5mm analogue and

S/PDIF connectors

to hook up a home stereo. Alternatively, speakers with Bluetooth built in, such as Creative's D100 (£53), are far cheaper than those with AirPlay.

Bluetooth's Achilles heel used to be audio quality, but modern audio devices use the aptX codec, which provides a very efficient 4:1 compression ratio for audio. Products using aptX include the Harman Kardon BTA 10-EU Bluetooth receiver (£50, above). That's all great if you're streaming from a Mac, since OS X includes aptX support, but it's not built into iPhones and iPads, which means spending around £50 for an aptX dongle (or sticking with

plain Bluetooth, which many users find perfectly acceptable). By the time you've bought a Bluetooth receiver, an aptX dongle and a set of speakers, you could probably have paid for an AirPlay system.

Bluetooth has other drawbacks. Its range is about 10 metres – plenty in a straight line with no interference, but about quarter of the range of 802.11g wifi, and a seventh that of 802.11n. Its limited bandwidth also means you'll struggle to stream Bluetooth to multiple devices, and there's no possibility of a multi-room setup.

Nor can you fill in Bluetooth dead-spots with cheap wired Ethernet switches and a run of cable, so it's unhackably unsuitable for larger houses. One excellent place for Bluetooth, though, is in your car. Range isn't a problem, and you can stream any audio from an iOS device to your car stereo. If you're upgrading your current car setup, expect to pay just under £100 for a Bluetooth-capable unit.

Going further

Wifi networks are not without their limitations. If it's audio (not video) that you're streaming, you're not going to run into bandwidth issues, but you may find range is a problem. Even in an average-size property you'll find a router placed at one end of the house on the ground floor typically won't produce a signal that reaches another floor at the other end of the building. The problem gets worse if there are lots of other wireless networks in the area, if you're in a building with thick walls (or simply a lot of walls), or if your router's in an environment with lots of signal-absorbing or reflecting

A wifi router at one end of a house typically won't reach another floor at the other

material, such as metal furniture or microwave ovens. Often you won't know what's blocking reception, it's just poor.

The most straightforward way to improve the range of your network is to move your router. Aim for the middle of its intended range, so try to find the centre of your house and locate it there; and the further from the floor the better if you're trying to get it to reach the next level up.

There are alternatives: you could install several cheap routers in your home as signal repeaters (Airport Express is one example), connected to your main wireless network either wirelessly in a chain or, if the distances are too large, with a carefully concealed run of Ethernet cable.

For those faced with truly impossible distances – think streaming audio to the barbecue area at the far end of a big garden – the answer is to bypass the concept of a network, bring the source as close as is practical to the target and create a direct wireless connection between them. Bluetooth works like this, but it's a bit trickier with wifi, and AirPlay doesn't support direct connection without a separate network. Apple is rumoured to be working on that functionality under the name AirPlay Direct – but the rumour has existed for a while now, and the kit still doesn't. ■

Praktik

PORTFOLIO

Ricardo Bessa →54

YOUR MILEAGE MAY VARY

Daniel Benneworth-Gray
on Apple niggles →58

TECHNIK

Steve Caplin on graphic design →60

Keith Martin on design practice →64

Will Head on videography →67

Dave Stevenson on photography →70

Tom Gorham on iWork →72

STEP BY STEP

Create interactive PDF forms
with PDFpenPro →76

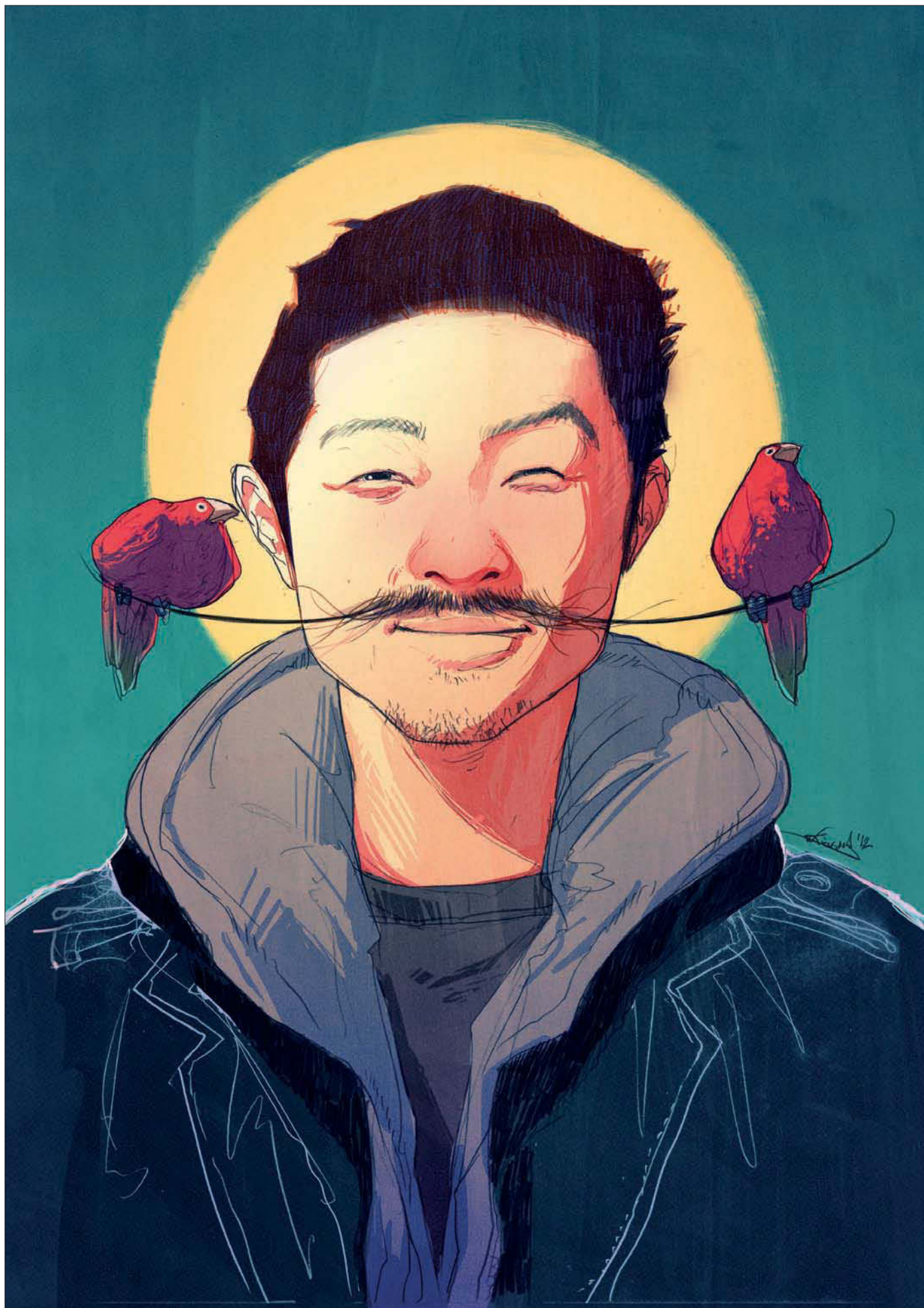
Q&A

Technical support from Howard Oakley →78

PRIMER

Error detection in data and
derived calculations →81





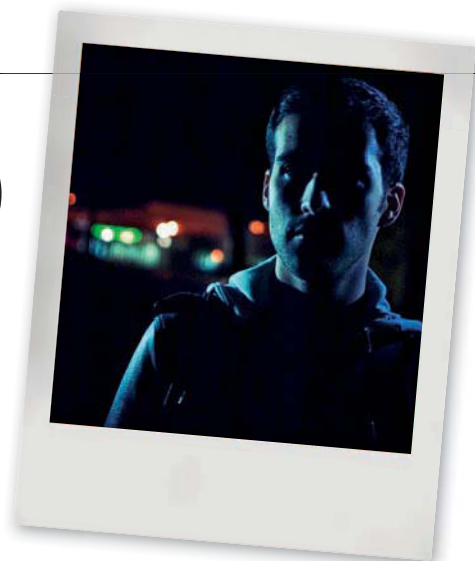
Portfolio

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RICARDO BESSA grew up in Penafiel, a small town in Portugal. He studied fine art at the University of Lisbon and went on to take a masters degree at Kingston University in London. His clients include Lenovo, HMX Media, Pfeiffer Wines and Popshot Magazine. Ricardo has recently been working at D&AD (dandad.org) on a regular basis.

MU What was your first Mac and what model are you currently using?

RB My first Mac was a 13in MacBook Pro. I got it after going through university with a really slow laptop, and I'm still using it. For now it's been good to me, and the portability is really important, but at some point I will probably buy a desktop Mac.

What equipment do you use apart from your Mac?

I'm generally quite low-maintenance when it comes to gadgets: I have a Wacom graphics tablet, an Epson scanner and a Canon printer. I used to be a big gamer and had a Sony PSP, but I don't have much time for that any more.

What's your favourite application and what was the first software you used?

Photoshop is definitely my favourite software, and it has been for a few years. Oh man, I don't know what was the first software I used – I must have been about seven. I wouldn't be surprised if it was Microsoft Paint. I do remember complaining to my mum that my older brother wouldn't tell me how to save drawings on it – I'd just spent hours drawing a copper-coloured horse running through a neon-green field. He eventually told me how to do it; I'm glad he did, as it was a beautiful drawing.

Can you offer any tips for success?

Working hard, being persistent and seizing as many opportunities as you can. And another thing that I feel a lot of people disregard – strive to be self-aware. It won't matter how many anatomy drawings you do, or how hard you try to network, if you don't

really look at the fundamentals and learn from your mistakes: you'll just be repeating the same mistakes.

As a child, what did you want to be when you grew up?

I actually wanted to be a vet. I've always loved animals, and as a child I knew more dog breeds than I care to admit. I gave up on the idea when I realised that lives would actually depend on the steadiness of my hands. I drew a lot throughout all of those years, but I could have never imagined actually making a living as an artist.

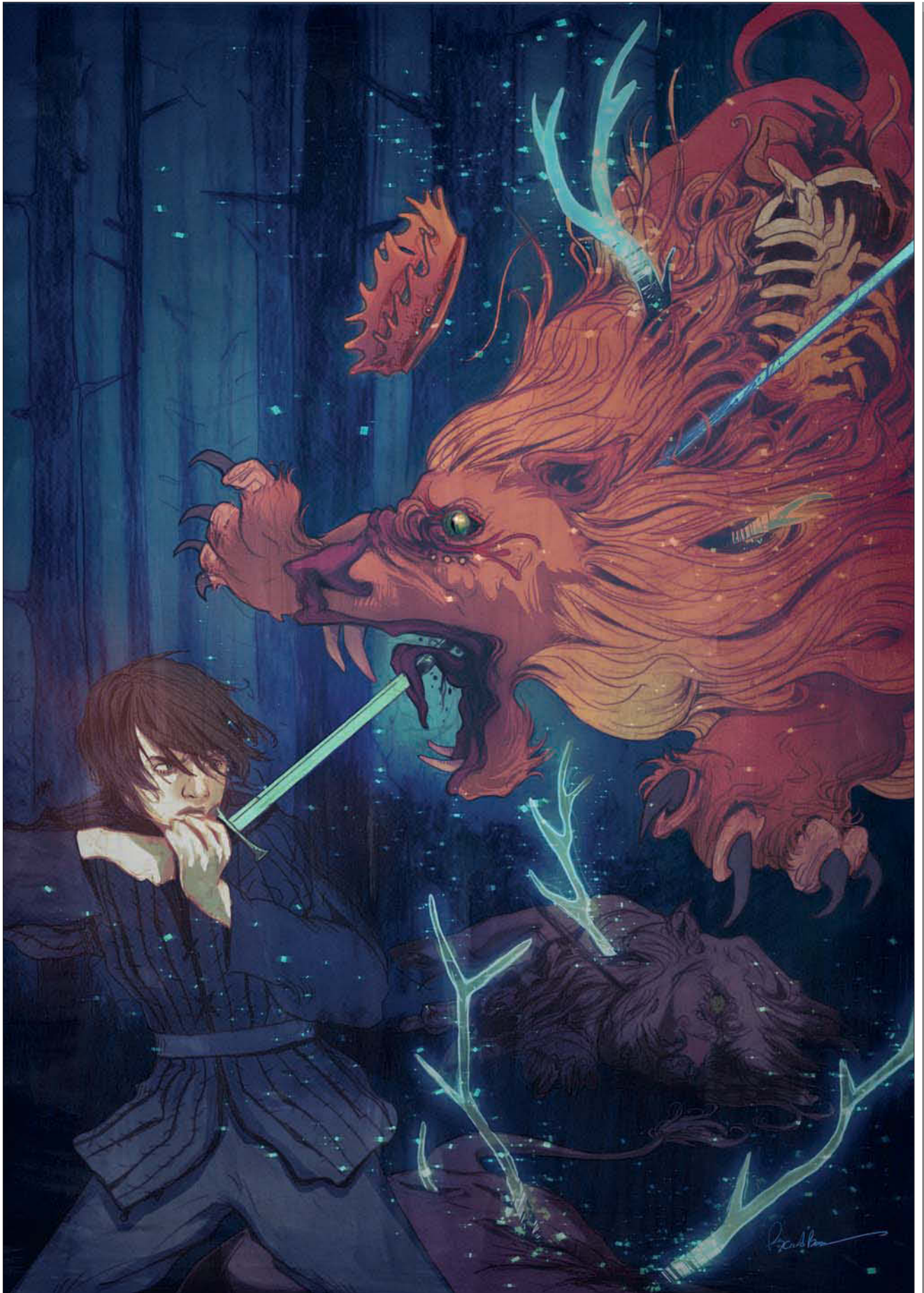
How did you get your first big break?

I'm not sure if this qualifies as a big break, but my first big job was wine bottles labels for Pfeiffer Wines. They'd seen the work I'd done for Secret7 (a cover for a Florence and the Machine vinyl) and liked it, so they asked me to illustrate their labels. It was really fun, and seeing my work representing an actual product was amazing.

What or who are your influences and inspiration?

I draw a lot from nature. The colours, the sunlight, the organic lines and ordered chaos have a huge influence on my work. It probably has to do with the fact that I grew up in the countryside. I've also been a big nerd, so fantasy, mythology and video games culture are some of my big influences.

As far as artists go, most of them are other illustrators, such as Edwin Ushiro or Jillian Tamaki, although I've been trying to open up to all kinds of visual art. I'm also a huge fan of photographer Ryan McGinley. →



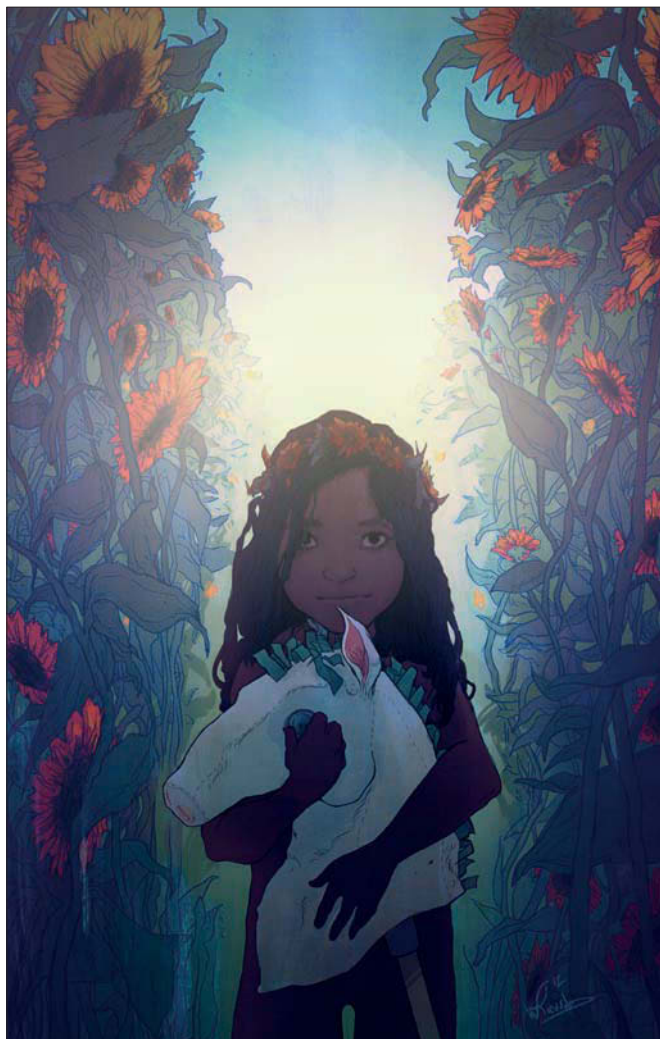
BESSA →



3

What mistakes have you learned from?
Not saving frequently enough.

What's your ideal project?
One that keeps me interested. I usually find it difficult to stick to long-term projects, simply because it requires a lot of consistency over time and I like to experiment. My ideal project would allow



4

for experimentation and variety. And, why not, pretty colours.

Tell us something good...

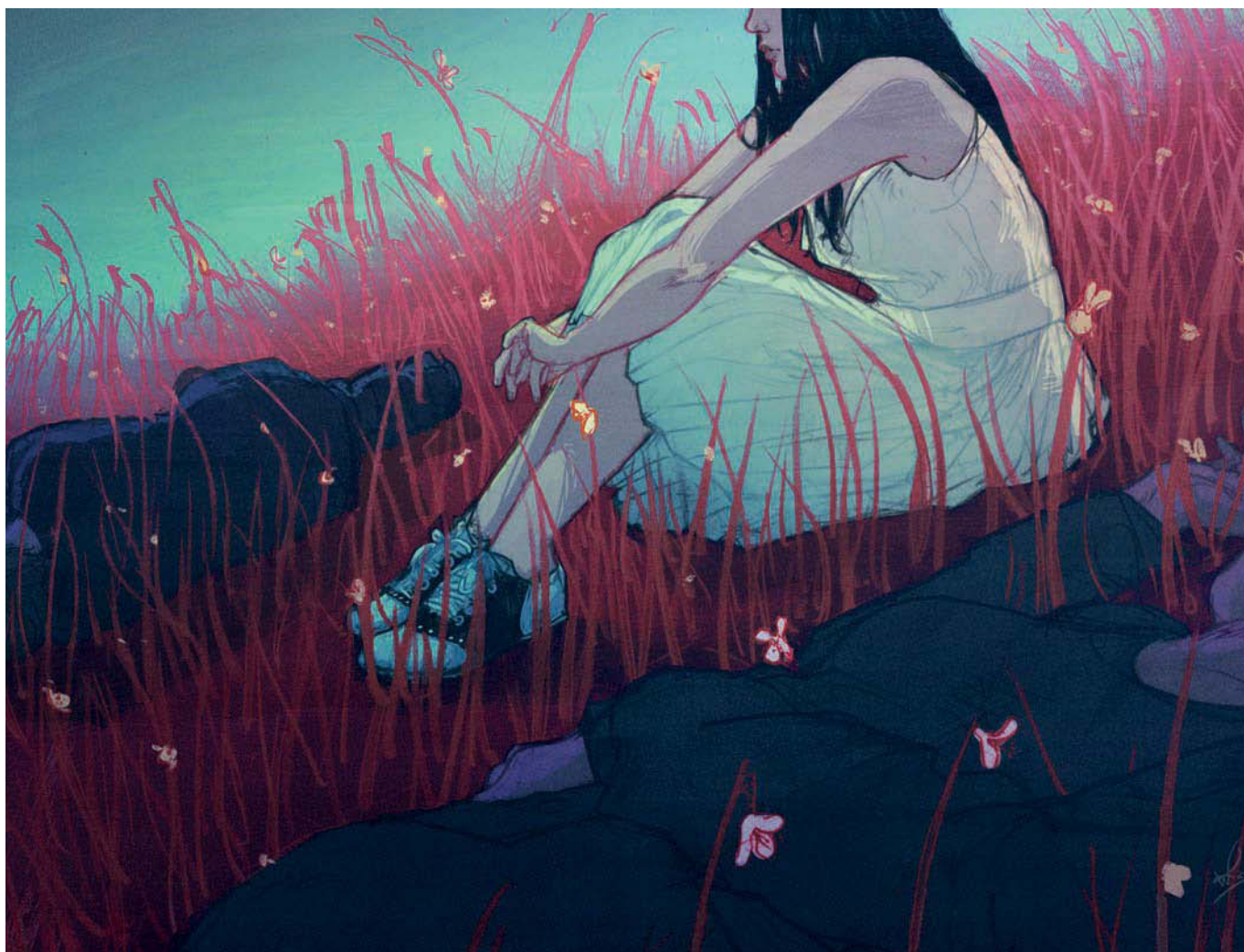
When I'm old and nostalgic and end up living God knows where, I'll always remember the best thing London introduced me to: chicken katsu curry. It's otherwordly.

What's your favourite gadget and why?

Not sure if it counts as a gadget per se, but I'd say my Wacom tablet. I've had it since I was 16 (2005). It survived years of three-hour train journeys, plane trips, a couple of spills and constant use. The pen looks like it's been through many wars and the surface is understandably scratched, but it still works perfectly.

Talk us through your work.

1 (Opening spread) and **6** 'Movember portraits'. These were for Movember's Gallery of Mo. I wasn't used to doing portraits, so this was a great challenge for me –I actually felt myself improving with each piece. I drew these on paper from photographs, then scanned them and coloured them in Photoshop.



5

2 'The Kill List'. This was for a show in Paris curated by Geek-Art.net to celebrate the beginning of the third season of Game of Thrones. I started it on a Saturday evening and finished it by the Sunday night. That was a busy day!

3 'The Light Eater'. Popshot magazine commissioned me to illustrate a short story by Kirsty Logan. It's a beautiful, sad story and I loved working directly with the narrative. I experimented with drafting paper on top of the drawing and bringing everything together in Photoshop.

4 'The Sun'. For a group show based on the Tarot, curated by Minneapolis-based Light Grey Art Lab. The whole show was made into an amazing Tarot deck.

5 'Little White Flowers'. The winning entry for a postcard competition by Fox Searchlight/Curzon Cinemas, based on the movie Stoker. I took a lot of reference photographs, scrapped a lot of sketches, and ended up taking a more intuitive approach. Sometimes that's just the way to go. ■



6



DANIEL BENNEWORTH-GRAY
is a designer and writer. He
blogs at danielgray.com.

Daniel Benneworth-Gray The lab-coated boffins at Apple see the same idiosyncrasies as us, and they try to keep the niggle count low.

ON ONE OF my frequent tours of duty through the Sex and the City box set (which is all part of my wife's ongoing Ludovico technique experiments), a little detail kept bugging me. It wasn't the ridiculous frockery or the cutesy-incessant voiceover. It wasn't even the general air of 'sod feminism, let's all marry rich so we can buy more shoes' being sold as girl power (hello the nineties!). No, it was the apple. The upside-down apple.

Every time Sarah Jessica Parker's writerlady opened her G3 PowerBook, the Apple logo on the back was upside-down! I'm sure it looked great when the machine was closed and slung under an arm, but not while in use. What's the point in carefully product-placing a product into a place if the logo is guaranteed to be the wrong way up? And not just on the telly, either, but everywhere: all those Macs being used in coffee shops and on trains and at conferences, all of them dumbly displaying what looked like Pac-Man's incontinent deformed cousin.

This sort of thing really irks me. I'm sure there are far more pressing issues in my life (such as, why are we watching this when there's a perfectly good Buffy box set right there?), but the fact that a logo was poorly set 15 years ago has put a tiny indelible crinkle in my brow. But it irks. It irks and niggles.

So thank heavens Apple saw the error of its ways and now the logo is mostly always the right way up (there's no accounting for folks merrily rotating their iPhones and iPads all over the place). It's all better now. Compared with those days of the ninetysomethings, everything is more polished and smoother and roundier-cornier and just more Ive-ish.

And yet, buried under all that aluminium and glass and it-just-works, niggles remain.

Don't get me wrong, I love my Mac. And my iPhone. And my iPad. They are – you're reading this fine magazine, so chances are you may have noticed this yourself – really rather splendid. I converted from That Other Computer Method ten

years ago and I haven't looked back. And I'm sure I must've owned a dozen mobile phones before this little gem, but I'd be hard pressed to remember what any of them were called or who made them. I am a brand-fan. Apple good.

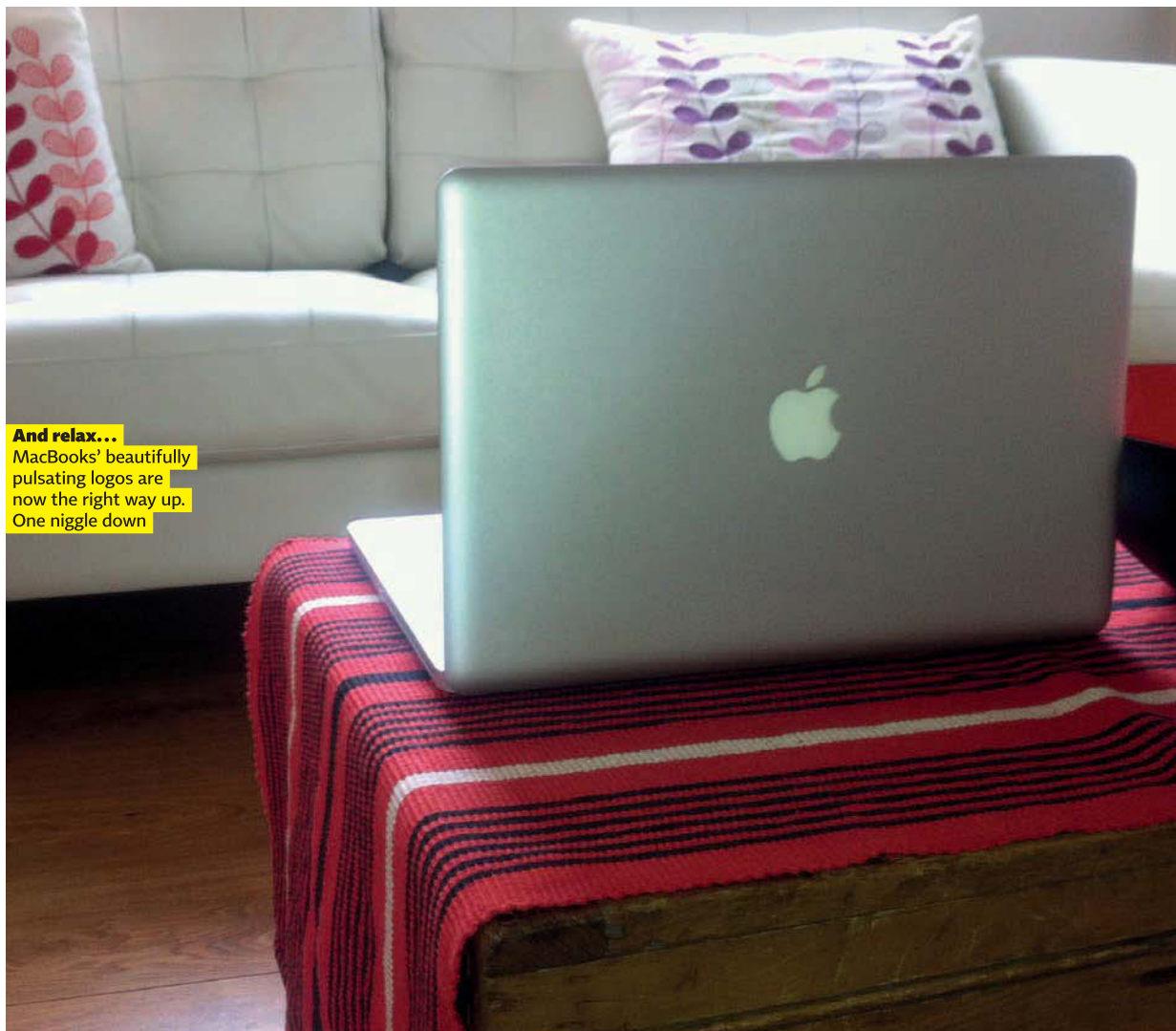
It's just... well, sometimes I feel like the Princess with the Pea. No matter how comfortable and reassuringly supportive all my Apple gubbins may be, once the tiniest of disagreeable details becomes apparent, it plays on my mind. Why is it there? Why is it like that? Why isn't it right? Everything else is right, why isn't this right? And then I can't get anything done. I have to carefully clamber down from my pile of metaphorical mattresses and deal with that pesky metaphorical pea.

WHY CAN'T I see my email count in the toolbar? Why does iTunes split up my albums like that? Why is it easier to type '\$' than '#'? How come the Calendar app icon shows the correct date, but the clock icon is forever stuck on 10:15? Would a ninth Safari tab really be that difficult? And two apps represented by compasses is a bit silly, isn't it?

I know, I know, I should get some perspective. We live in the world of tomorrow (or Tomorrow's World, as we called it yesterday). When I grew up, the best bit of technology I owned was a typewriter that came with black and red ink ribbons (just imagine the possibilities!), or perhaps Zoidzilla. If I were to go back now and explain to my pipsqueak younger self some of the things you can now do with an iPhone, little me would probably pop with excitement.

But then a troubled look would appear on my angelic little face.

'So it's telephone that I can carry about and it plays songs and movies and games and it's also a camera and a book and a notebook and it connects to a sort of super-Ceefax and it feels like a lump of chiselled science fiction amazingsness and it fits in my pocket and I can get it to do stuff just by talking at it?'



And relax...
MacBooks' beautifully
pulsating logos are
now the right way up.
One niggle down

Once the tiniest of disagreeable details becomes apparent, I have to clamber down from my pile of metaphorical mattresses and deal with that pesky metaphorical pea

'Yes.'

'But you can't uninstall Stocks?'

'No.'

'STUPID.'

Sorry, young self. The good news is that, one illogically insistent app aside, these little things tend to right themselves. The lab-coated boffins at Apple see the same idiosyncrasies as us regular folk, and they strive to keep the niggle count low. They may have a bit of a backlog – they're still reeling from the fallout of the infamous iTunes Vertical Traffic Light Buttons Incident of 2010 (aka 'the tut heard around

the world'), and have recently lost valuable resources to the Skeuomorph Back-peddalling Division – but they're doing the best they can.

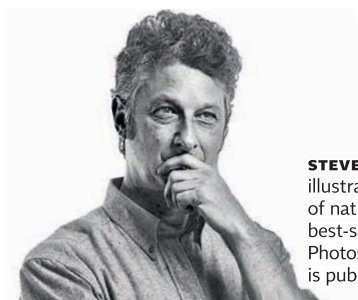
And there's a flip-side to all those irks: a thousand nice little touches that you take for granted until you suddenly notice them one day and realise just how deliberate, how considered every aspect of the Apple experience is. All those curves and angles and dimensional ratios didn't happen by accident. And they all add up. The biggest company in the world is built on a foundation of details.

Look at the logo on the descendant of Sarah Jessica Parker's silly PowerBook, the MacBook. It's the right way up now, and it glows. And not only does it glow, it glows at the same brightness as the display. Dim the screen, and you dim the apple. Not really necessary, but it brings a smile to the mind. And the charms of the MacBook light show don't end there. Even the most restless and pea-vigilant of princesses would struggle not to be comforted by the gentle pulse of the MacBook's power light. A delightful de-irkifier, an anti-niggle.

Now all we need is an anti-Stocks... ▀

TECHNIK

'Yahoo! has unexpectedly bounced back into the internet's consciousness' → 13



STEVE CAPLIN is a designer and illustrator working for a range of national newspapers. His best-selling *How to Cheat in Photoshop*, now in a sixth edition, is published by Focal Press.

OUT OF BOUNDS

When letters refuse to align, you need to resort to some visual trickery

GRAPHIC DESIGN

THE ITV SERIES *Foyle's War* returned with a new series earlier this year. Set not during World War 2 but in the turbulent cold war years that followed, it sported a new title sequence full of the trappings of espionage and secrecy **1**. Where the original ident had featured a small 'Foyle' set over a large 'War', with this version it was decided that the two words should appear, visually, the same width. An apparently simple decision, but one that presented a nightmare for the designer. Here, we'll look at the problem of aligning words that somehow refuse to align.

Let's start off by looking at a straightforward combination of words **2**. The two lines of text here are set in Myriad Bold, because it's a more straightforward font than the period Gill Sans used in the *Foyle's War* title, as you'll see later. Everything aligns neatly: the two words are exactly the same width, with the left of the 'U' lining up with the left of the 'B', and the tail of the 'R' aligning with the right vertical stroke of the 'N'.

But what happens when the text isn't so compliant? Look at this slightly different version **3**. In theory, it should all work: the top and bottom lines still align with each other, as their widths are identical. So why does it appear as if the top line is now too wide? There's an uncomfortable sense that the 'R' in the top line is overhanging the line below. The problem comes from the fact that the letter 'D' is composed of one huge bulge. The full extent of the letter may reach to the edge of the text block, but because there are such large gaps at the corners, it

feels as if the weight of the edge is further towards the centre of the letter. By tightening up the spacing on the top line, you bring the 'R' further to the left so that it now sits in a little way from the extreme right of the 'D' **4**. The whole effect is more balanced, even though the two no longer truly align.

Sometimes the alignment is determined clearly by the letter shapes **5**. In this example, the 'U' of the top line has been moved to the right, to allow for the bulge of the 'C' beneath it (a direct mirror of the 'D' problem in the previous example). On the right, the 'R' in the top line neatly aligns with the top of the 'M' beneath, even though the 'M' goes on to flare out.

But what happens when two curved letters sit on top of each other? Shouldn't the effect cancel out? It seems not **6**. Here, the top line appears to be too far to the right, even though the two curves of the 'S' and 'D' more or less align. Moving the whole line to the left produces a better balance **7**.

Changing to a serif font causes different problems. The two lines of text appear to align well **8**. The top line has been shortened to allow the 'D' to overhang below, producing a visual balance. And a happy coincidence means the wide arm on the 'T' matches the width of the serif on the 'B' below it.

Not all combinations of words are so fortuitous. When you change the lettering, you see a new problem **9**. The left edge of the top line is in exactly the same position it was before, so why does it appear too far to the left? It's because the →

itv

FOYLE'S WAR

1

**USE YOUR
BRAIN**

2

**USE YOUR
BREAD**

3

**USE YOUR
BREAD**

4

**USE YOUR
CREAM**

5

**CHEAP AS
BREAD**

6

**CHEAP AS
BREAD**

7

**THE LOAF OF
BREAD**

8

**NEW LOAF OF
BREAD**

9

NEW LOAF OF
BREAD **10**

FOYLE'S
WAR **12**

FOYLE'S
WAR **14**

ONE LOAF OF
BREAD **11**

FOYLE'S
WAR **13**

FOYLE'S
WAR **15**

ALIGNING TEXT → stress is on the vertical, not the edge of the serif. And here, the left vertical stroke of the 'N' is further to the left than the corresponding vertical of the 'B' beneath it. The result is a sense of imbalance. The solution, once again, is to move the top line of text to the right, tightening up the tracking in the process **10**. It's a small change, but it restores a sense of balance to the whole construction. This sense of visual balance varies with each change of text, of course. In this instance **11**, the 'O' of the top line has been moved to the right, in from the edge of the serif beneath. But rather than aligning the left edge of the 'O' with the vertical stroke of the 'B' beneath it, you have to allow it to bulge out, just as you had to make allowances for the bulge of the 'D' earlier.

And that brings us back to the problem faced by the title designer on Foyle's War. There was little choice but to use Gill Sans, as this evokes the war period like no other font. The font was actually designed in the 1920s, but achieved the sort of prominence in the 1930s that Helvetica did in the 1990s: it became the corporate font of choice for a range of institutions, from the BBC to Penguin Books.

So let's try reproducing the title panel with a similar background. Begin with the two words aligned flush either side, so the two lines truly are exactly the same width **12**. It's an uncomfortable combination. The problem comes from the word 'WAR', which is about the hardest word to align to. The

strong diagonal left stroke of the 'W' means there's no comfort point to which to align the text above: unlike the 'D' in the earlier examples, which at least had the sense of a centre of balance, the 'W' merely forms a slope.

The 'R' presents a different kind of problem. One of the distinctive features of Gill Sans is the way the tail of the R projects far further than normal beyond the bowl above. It's an attractive feature, but a major headache for this designer. The 'S' appears to be far too far to the right. One approach would be to tighten up the tracking in the top word, bringing the 'F' to the right so only a portion of the tip of the 'W' projects beyond it, and aligning the curve of the 'S' with the bowl of the 'R' beneath it **13**. And it nearly works, but the problem is still the tail of the 'R', which now appears to project too far.

There's probably no perfect solution to this problem, and the graphic designer on the title sequence came up with a reasonable compromise. They aligned the 'F' and 'W', allowing a small projection beyond the 'F' **14**. The vertical stroke at the terminal of the S is taken as the right extreme of the top word (with the curve then bulging out beneath); if you trace the vertical down, you see that the tip of the 'R' extends beyond this by an amount that balances the extension of the tip of the W.

Here's our redrawing of the original design, without the vertical lines **15**. It's a workable solution to the problem of aligning two words, which, on the face of it, can't be aligned. ■

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iPad mini



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→ Can you tell what it is yet?

Itidentifont helps you pin down a particular unknown font through a series of questions and answers



KEITH MARTIN is MacUser's technical editor. He's been using Macs since the beginning, and has a background in all areas of graphic and interactive design.

IDENTITY CRISIS

What font is that? Don't panic – there are resources to help you find out

DESIGN PRACTICE

ONE THING THAT non-designers often expect you to do at the drop of a hat is name what typeface something uses. Of course, it doesn't help that most of them could only name a handful themselves: Arial, Helvetica ('same as Arial, innit?'), Times and, er, 'that lovely Comic Sans' seem to be the typographic limit for most people. Ask someone how many typefaces there are and they'll rarely go beyond a hundred or so. Oh, how wrong that is! A few years ago, I helped write a book called 1,000 Fonts. It was a good selection, but it'd need a lot more volumes before it even came close to being actually comprehensive.

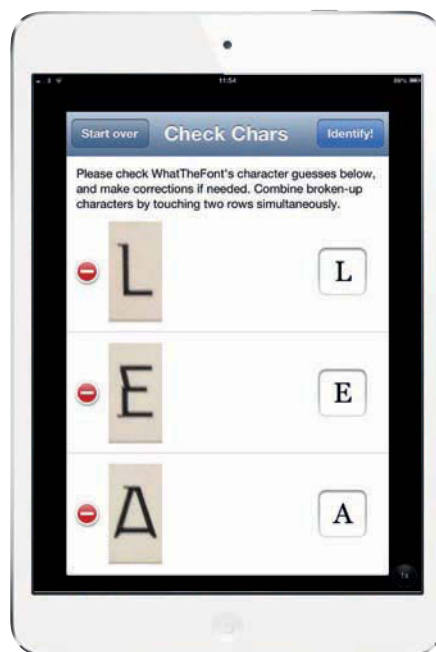
But does this help when it comes to identifying the typeface in some bit of artwork someone shows me? I can spot some, but usually I need help. Back in the day, I'd dig through type specimen books and stress about precise typeface classifications: was it Garalde or Transitional? Which of the Lineal subgroups was it from: Grotesque, Neo-grotesque, Geometric or Humanist? Thankfully, I've managed to curb this tendency – at least somewhat. I still do font-spotting from time to time, but there are websites to turn to rather than dusty old font books and sample cards. None of them are perfect, which is why I have a short list rather than one preference, but they're good enough to start with at least. It's often a little frustrating how often they come close but don't actually pinpoint the actual one, but they'll often find things that are very close – at least with the majority of typeface identification queries I get.

Identifont (identifont.com) is my favourite, although it's as much for the way it makes me try to second-guess its questions as for its accuracy, which can be variable. This uses a question and answer process to pick out the right face by its appearance: answer increasingly specific questions – sometimes rather odd ones – and you'll be presented at the end of a dozen or so steps with its best guess or guesses. It helps if you have a lot of different characters to look at, but if the sample is limited, you can tell it which letters you have so it won't quiz you about any others. Sometimes it's good, sometimes not.

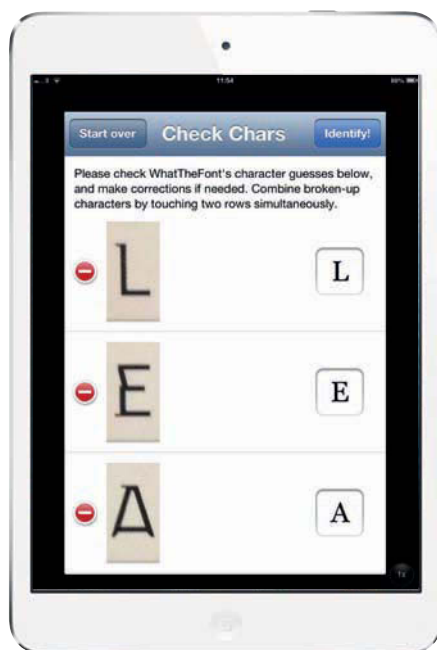
There's a similar Q&A approach taken by the Bowfin Printworks' Serif Font Identification Guide, at bit.ly/serif-font-finder, although obviously it only deals with serif typefaces. It's worth using, and if you get really stuck, the guy behind it offers an email-based identifying service.

The WhatTheFont pages at MyFonts.com takes a different approach. Upload a photo or scan of some type and it will use shape-recognition smarts to try to pin down what it is. You'll need to help it spot which characters are what, and it helps if the letters don't run together, are upright (meaning the angle of the scan; it will work with slanted and italic styles) and are around 100px high. That means you'll struggle with body text unless you use a flatbed scanner; getting a large, crisp snapshot of 8pt type with your iPhone camera isn't easy. With the right kind of input, the server will pick out individual letters from →

Behind the Zines: Self-Publishing Culture



Hit and miss
WhatTheFont lets you upload a scan of your chosen type and uses shape recognition to identify the font. After you help it with character checking it will guess the font – not always correctly, as in the two examples shown here

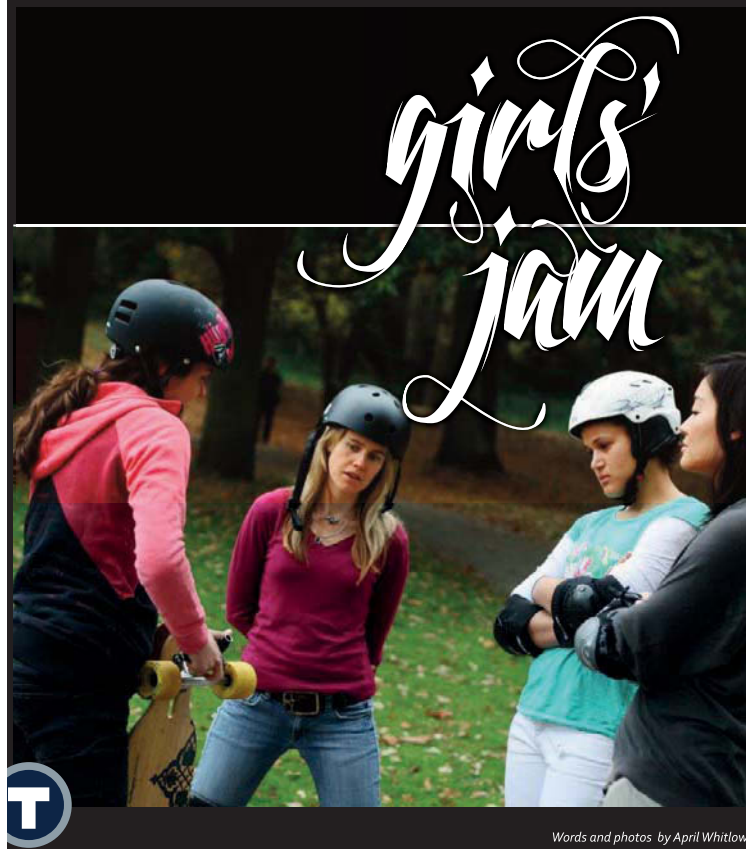


→ **Forbidden fruits**

Fabulous as they are, some fonts such as Feathergraphy can only be used occasionally. What's your guilty pleasure?

Guilty
pleasure

Longboarding crosses many boundaries: if you love it you're 'one of us', regardless of anything else. But it can still be intimidating for girls to step into this presumed-male sport – hence the 'Girls' Jam' sessions. Here's how one worked out:



Words and photos by April Whitlow

IMAGES FONT USE COURTESY OF MÅNS GREBÄCK ARINGTYPEFACE.COM/FEATHERGRAPHY

FONT SPOTTING → the sample. From this, you check that it's getting things right – common faults include missing the dot on the letter i, and mistaking l, I and 1 – then see what it comes up with. Again, it often comes close without hitting the target itself, but it's another useful way to narrow things down.

The WhatFontIs service (whatfontis.com) does a similar job to WhatTheFont. Upload a snapshot or point the page at a graphic online, confirm what letter each identified character is, and it'll have a stab at naming it for you. Unlike WhatTheFont, which has a free iPhone app for snapping and submitting samples, WhatFontIs is web-only. It's also not particularly iOS-friendly, it doesn't want very many characters submitted in its sample, and the 1.8MB maximum file size is a bit smaller than the average iPhone snap. It's in my bookmark set, but it's definitely number three in a field of three.

At this point, I normally either have something close enough from the list of suggestions (maybe even the exact face – it does happen) or the problem itself has gone away. If, however, I still want to track something down, I can either turn to my old type specimen books or go ask real people online. And for that, there are a few excellent places you should know.

First, the forums at typophile.com can be invaluable, although as with most specialist-subject online hangouts, you should ask nicely and be prepared for some to-and-fro debate. The person behind the Bowfin Printworks Serif Font

Identification page will also attempt to name font samples emailed to him, and for free, too. Finally, Fontshop offers a similar typespotting service at fontshop.com/research. You'll have to register, but it's a free service. Because, of course, they're hoping to sell you a font if they help you track it down.

Although the number of fonts in the world is overwhelming, the list of typefaces a designer works with on a week-to-week basis is generally pretty small. We have our workhorse faces, the things we're comfortable using for body text or for simple headlines, then our showcase favourites that add flair, and finally the guilty pleasures: faces that are really hard to use, would be too much if they featured more than a couple of times a year, but we keep looking out for a chance all the same. This isn't a guilty pleasure like Russell Brand dating Geri Halliwell, it's the recurring urge to use a font that's just plain difficult to match, no matter how well designed it is. My current #1 in that list is Feathergraphy, a gorgeous, chunky-but-feathery calligraphic design with clever touches such as zero-char-width swashes that automatically sit underneath other characters within the same line. I've used it precisely once in the last 18 months, but it's permanently there in my Fonts menu.

So my question is this: what's your current guilty pleasure font? What face is too funky for normal use, but you keep looking for a chance? Tweet the name to @macusermagazine and tag it with #funkyfont – let's compare notes. ■



WILL HEAD is co-founder and director of Fixation Video, a production company that specialises in making video content for the web.



↑ **Reet petite**
4K wasn't the only new kid on the block: Blackmagic's Pocket Camera impressed with its small format and relatively modest £650 price tag

FANTASTIC FOUR

NAB showcased plenty of cool new products, but 4K took centre stage

VIDEOGRAPHY

IT'S THAT TIME of the year again when the video community gathers in the Las Vegas desert to take a look at the latest and greatest filmmaking gadgets at the NAB show. If you want to know what's coming in the next six to 12 months, the products on show at NAB can give you a very good guide.

The big message from the show this year was that 4K video has finally arrived. While it's been a high-end option for some time, it's finally trickling down to the mainstream budget. 4K promises four times the resolution of 1080p – an astonishing amount of detail. It could be argued that no one actually needs this level of detail, and that TVs and projectors capable of showing it off are yet to materialise at sensible prices, but on the production side, it's definitely here to stay.

Sony in particular is pushing the extra pixels, with not one but two 4K upgrade paths for its already-available FS700 camera. Sony's official route requires you to buy the HXR-IFR5 interface unit, which clips onto and feeds the AXS-R5 recorder, which is used with the company's other 4K cameras. At an expected price of \$2,000 (about £1,300 ex VAT) for the interface and another \$6,000 (about £3,900) for the recorder, it's not a cheap upgrade, especially when the camera itself will set you back around £8,000 new.

The second option to get 4K out of the FS700 is via the Odyssey7Q from Convergent Design. This is a 7.7in OLED monitor that can also record video from a camera at the same time.

Rather than bundle the 7Q with features that not everyone will want, Convergent Design instead allows you to buy or rent features as and when you need them. So if you want to record in a certain format, you can pay extra to unlock that functionality indefinitely or for a set period of time. The starting price for the unit is \$2,295 (about £1,500 ex VAT), but recording 4K out of the FS700 is listed as a paid-for upgrade beyond that. Unless it costs a surprisingly huge amount of money, it should still be cheaper than Sony's solution.

Last year at NAB, Blackmagic Design, previously known for its video converters and HDMI interfaces, shocked everyone by announcing its own camera capable of capturing raw video for only \$3,000 (about £1,900 ex VAT). Twelve months later, it's back with two additions to the range. The Production Camera 4K supports 4K for just \$4,000 (£2,600). Given the price other companies are charging for 4K cameras, that's extremely affordable, although you'll need to spend a lot more on a complete setup. It features a larger Super 35 size sensor than last year's Cinema Camera, and a global shutter, which means items in a scene won't skew when you pan quickly, unlike other large-sensor cameras that use a rolling shutter. It's lost one stop of dynamic range, but its 12 stops means it can still capture a huge range of light and dark values.

The second new model from Blackmagic is the Pocket Cinema Camera, a tiny camera that's capable of capturing →

→ **Playing the full**

Canon's EOS 1DC can capture 4K footage in camera, but a 128GB card will only last 32 minutes



Space invaders

WITH 4K CAMERAS falling in price it may seem attractive to start shooting with all that extra detail. Before you jump into 4K, however, there are a number of things to take into account. The camera is only part of the expense. 4K content takes up a huge amount of space compared with HD video, which will impact not just capture, but also storage and archive. Canon's EOS 1DC DSLR, for example, will take just 32 minutes to fill a 128GB card. This works out at around 4GB per minute of footage. 1080p footage, by comparison, occupies around 200-400MB per minute, depending on the compression used.

Due to the large amounts of data involved in capturing 4K video, you also need fast cards. SanDisk's fastest Extreme Pro 128GB card will set you back over £500, so to have enough memory cards to last a whole day's shoot, you're looking at over £4,000.

When it comes to editing your 4K footage, you're going to hit further barriers. Unless you have the fastest Mac available, all the comforts of real-time effects and no rendering that you're used to with HD footage will be gone. Instead, it's back to choppy playback and waiting hours for effects to render before you can see the final look.

It's also worth considering that hardly anyone has a 4K capable display, so they won't even be able to appreciate the extra resolution despite all the extra work and cost involved. All of these problems will be solved with time, but at the moment, the cost of the camera is just the tip of the iceberg when it comes to working in 4K.



← **Spare no expense**
Sandisk's fastest 128GB CF cards cost over £500 each



↑ **Stable guy** These stills from Vincent Laforet's demo video of the Freefly Movi show how the camera stays level, despite the extreme operator movement

NAB KIT → 1080p raw footage to SD card. It uses a smaller Super 16 size sensor and Micro Four Thirds lens mount, making it an incredibly versatile camera that squeezes most of the functionality of the original Cinema Camera into a much smaller body, with an astonishingly low \$1,000 (£650 ex VAT) price tag.

NAB isn't just about cameras: it covers all the accessories that are associated with video making. One of the most interesting of those on show was the Movi by Freefly Systems. This is a stabilisation system that uses gyroscopes and motors to keep your camera level and its motion smooth – it's a bit like a Steadicam, but with intelligent electronics to keep everything stable. Movi can be operated by a single person, reacting to movement to keep the camera steady, or for more advanced moves a second person can control the movement remotely, which means you can get the exact shots you need.

FILMMAKER VINCENT LAFORET, who made *Reverie* (the first 1080p short film shot on a DSLR), made the launch video for Movi and was also on hand at the show to talk about using the device. The Movi allows filmmakers to create shots that previously would have required laying down tracks for a dolly. The time saving, along with the creative freedom to try out new shots, makes the \$15,000 (about £10,000 ex VAT) asking price look reasonable. Even so, it certainly won't be within everyone's budget, but the company has promised to make a smaller unit

↑ **4K dokey**
Blackmagic's
Production
Camera 4K offers
4K capture at
an extremely
attractive price



↔ **Clip service**
The Sony AXS-R5 clips
onto the HXR-IFR5
interface unit to enable
4K recording from
the FS700 camera



that's capable of taking lighter DSLR cameras and will cost half that amount later in the year.

At the other end of the production spectrum, for single camera operators, was Redrock Micro's One Man Crew – a camera slider with a difference. Designed, as its name implies, for people who need to shoot interviews on their own, the One Man Crew lets you capture interesting shots from a second camera without needing a second person to operate it.

The slide is driven by a motor and is parabolic rather than straight. This means the camera moves in a curve around the subject, always maintaining the same distance, which is important for focus. Once you've mounted the camera and focused it on the subject, you just hit Record and set it going. The camera will automatically move to one end of the slider and then back, continuously. It looks like a great way to raise the production values of a single-person shoot without the additional cost of a second camera operator. With a \$1,500 (£975 ex VAT) asking price, it should pay for itself in no time at all. ▀



← **Going it alone**
The One Man Crew
from Redrock Micro is
a parabolic slider that
automatically moves the
camera from one end to
the other while maintaining
focus on the subject



→ **Proof of ownership?**

A shot with plenty of cute factor that got picked up in plenty of places. The IPTC data embedded in the image file identifies it as one of mine (top left, opposite page)



DAVE STEVENSON has been a camera buff ever since the whirr-click of his first auto-winding compact in 1993. His book, the Pocket Guide to Digital Photography, is available from magbooks.com.

ERRA PRONE

Under the guise of reform, a new Act leaves photographers open to theft

PHOTOGRAPHY

IF YOU WANT to see a good thing ruined, involve the government. It isn't that governments are run by megalomaniacs more interested in expensing their duck houses and giant pizza ovens to the electorate, it's that allowing any group of lay-people to make technical rules about a huge range of subjects invites disaster. OK, it's also slightly the megalomaniac thing.

But it isn't just tin-pot dictatorships whose politicians run their industries into the ground. The UK Government seems keen to show it's equally agile when it comes to driving hard-working independents against the wall, and so it is that the Enterprise and Regulatory Reform Act, which I railed against just two issues ago, is now law.

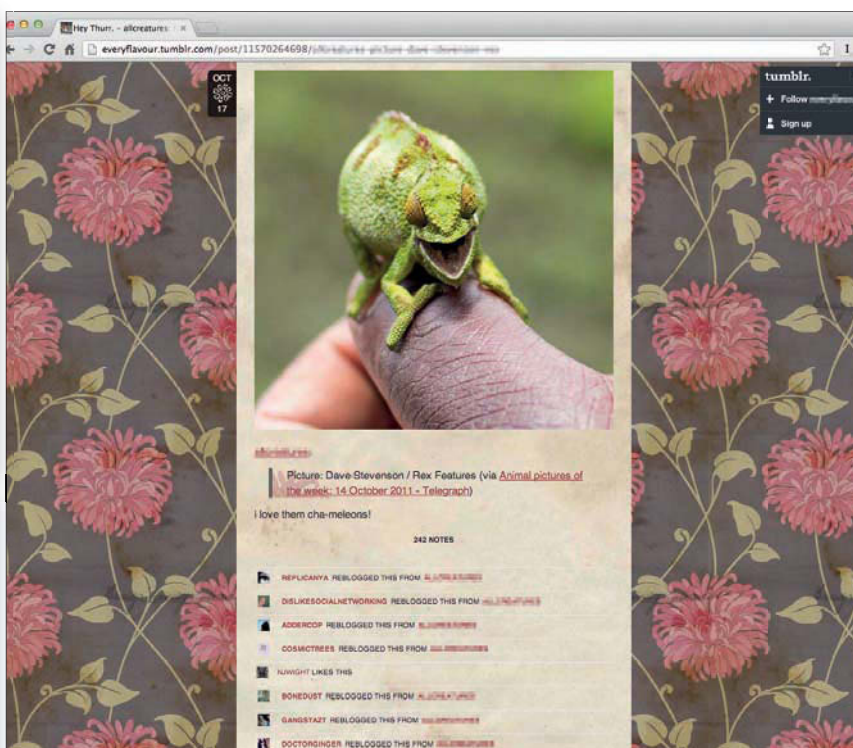
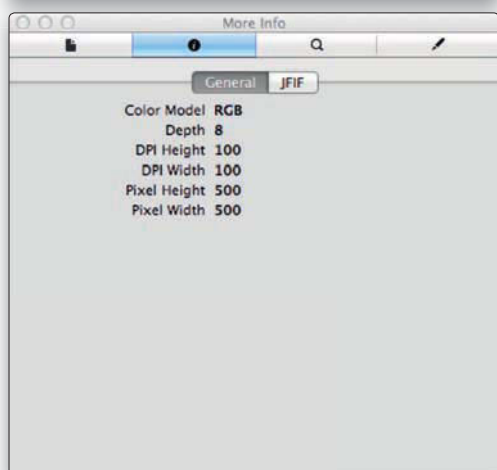
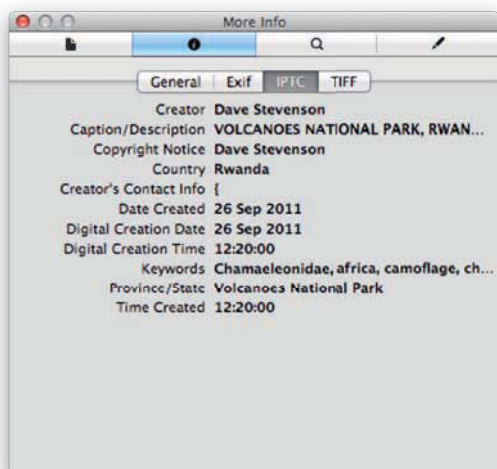
For those who don't snip out my columns and stick them on the fridge, the Act – conveniently acronymed ERRa, as if they knew – is a dramatic reshaping of copyright law in the UK, and will have huge ramifications for photographers in this country. The Act has been the subject of a popular campaign that attempted to reason that, though well-intentioned, it would prove a net negative for photographers. Faced with a wave of indignation and reasonable debate from invested experts, the Government did what governments always do: it ignored the protests and followed the money.

The result is a piece of legislation with the potential to undermine every piece of original work that ends up on the internet. As I understand it, as long as a publisher, advertiser

or newspaper makes a 'diligent effort' to trace the copyright holder of a work, they can then, assuming a fruitless search, use that work as they please. The problem with that is so obvious you have to swerve to miss it: simply defining 'diligent effort' is hard enough; proving you've made one (or that you haven't) is all but impossible; and that plays into the hands of well-heeled companies with legal advice on tap, while badly hurting freelance photographers with less financial firepower.

There are safeguards. An official gatekeeper will track 'diligent' searches, and authorise the use of unclaimed, or orphaned, material. But, as anyone who attempted to get anywhere on a train during the 1970s will know, government bodies are not always foolproof.

Rather than get all hot and bothered about the *potential* ramifications of the ERRa, let's look at something that's actually happened. Brandon Stanton is a street photographer from New York. He runs the Humans of New York project, and was approached in 2012 by clothes company DKNY, which offered him \$15,000 (just shy of £10,000) for the use of 300 of his shots. He said no. Then, to what we may imagine was his considerable surprise, some months later he received a picture from a friend, showing the front of DKNY's Bangkok store festooned in precisely the photographs he had refused to sell licences for. The internet loves to get outraged about things like this, and Stanton, rather than start costly legal proceed-



← ↑ In the wild

The same shot, nabbed from a newspaper website and reposted by a randomer on Tumblr. Note that the IPTC data has vanished in the process, so tracking down the owner is now much harder. If someone finds the image on this site and wants to reproduce it, what's to stop them claiming it's an 'orphan' under the provisions of ERA?

ings, leveraged an astonishingly fruitful Facebook campaign to embarrass DKNY into donating \$25,000 to the YMCA.

It turned out DKNY had made a simple enough mistake – gathering photos for comping purposes, then accidentally publishing them, which it's hard to believe doesn't happen several times a week. But under the UK's new copyright laws, it would be harder to prove DKNY had done anything illegal. How can we be sure that whichever body ends up with responsibility of tracking orphaned work will do an adequate job of protecting photographers? With ERA in place, these wallet-draining fights and pinched work are all the more likely.

My work ends up on Pinterest and Tumblr pretty often, generally 'borrowed' from newspaper galleries and the like. The instances I'm aware of are credited to me – how else would I find them? – but more often than not the files themselves have had the metadata stripped from them. I'm careful about this: images I send to clients always contain my name and contact details, precisely so I can be easily traced if someone stumbles across the file and wonders if they have to pay to use it. But you can imagine the sequence of events: a picture starts on Tumblr with a credit to the photographer. Then it's reposted, repinned, and at some point my name vanishes, effectively making the work an orphan. With no name and no metadata, finding the photographer becomes much harder. Now my work – and the right to use it – is in the hands of an unnamed,

unstaffed government agency that may or may not do a good job of protecting me and my income. It's an unfair system that's tipped massively in favour of unethical publishers.

The government recommends that anyone thinking of using what they believe to be an orphan work should set aside 'appropriate remuneration' in the event the work's creator comes after them – which is a little like a careless driver being allowed to decide how much compensation they might need to pay the victims of a road crash. We're told there'll be a 'going rate'. The idea of the market deciding what an image is worth is age-old; the idea of a government doing the same is alarming.

The effects of the Government's tinkering with copyright law are not just going to be felt by photographers, although it's likely they'll be the worst affected. Snappers who depend on a loyal social networking following might find themselves less inclined to share high-resolution, unwatermarked images with their fans, which could negatively impact everyone who likes photography, not just those who make their living from it.

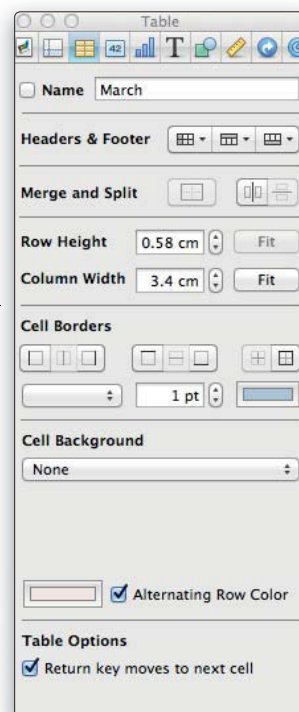
Politicians don't always have qualifications much beyond yours and mine to make decisions with ramifications that last far into the future. So when it comes to legislation, they need to take advice from people who know what they're talking about. Unfortunately, the loudest voices are rarely the most sage. Hands up if you wish they'd stick to stealing duck houses and flat-screen TVs? ■



TOM GORHAM has worked with Macs since 1991. Although his background is in print and web publishing, he's a devotee of any software that makes life easier.

→ Style setter

You can quickly apply and save styles from Numbers' Styles pane



SAME AGAIN, PLEASE

Use captured tables in Numbers to grab formats, data and formulas

AS MAC USERS, we're used to hearing the hoary old 'style over substance' and 'form over function' jibes aimed at our favourite computer platform. However, those criticisms are rarely applied to that niche of Mac users who spend most of their working life inside Numbers. With good reason. I worked on my first spreadsheet 20 years ago and, outside Numbers' beautiful built-in templates, I'm struggling to think whether I've seen a good-looking one in all that time. Most are Heath Robinson affairs: ugly and intimidating, yet cunningly functional.

But good-looking tables, formatted consistently across a spreadsheet, serve a practical purpose by helping to make the information they contain easier to read and understand. The only reason I can think of why this is so often ignored is that so few people realise how easy it is to make spreadsheets look presentable.

The secret to good-looking Numbers tables lies first in the app's styles, which you can use in a similar way to how you'd style paragraphs in Pages. At the most basic level, you can transform the look of a selected table by clicking on any of the attractive pre-built styles in the Styles Pane.

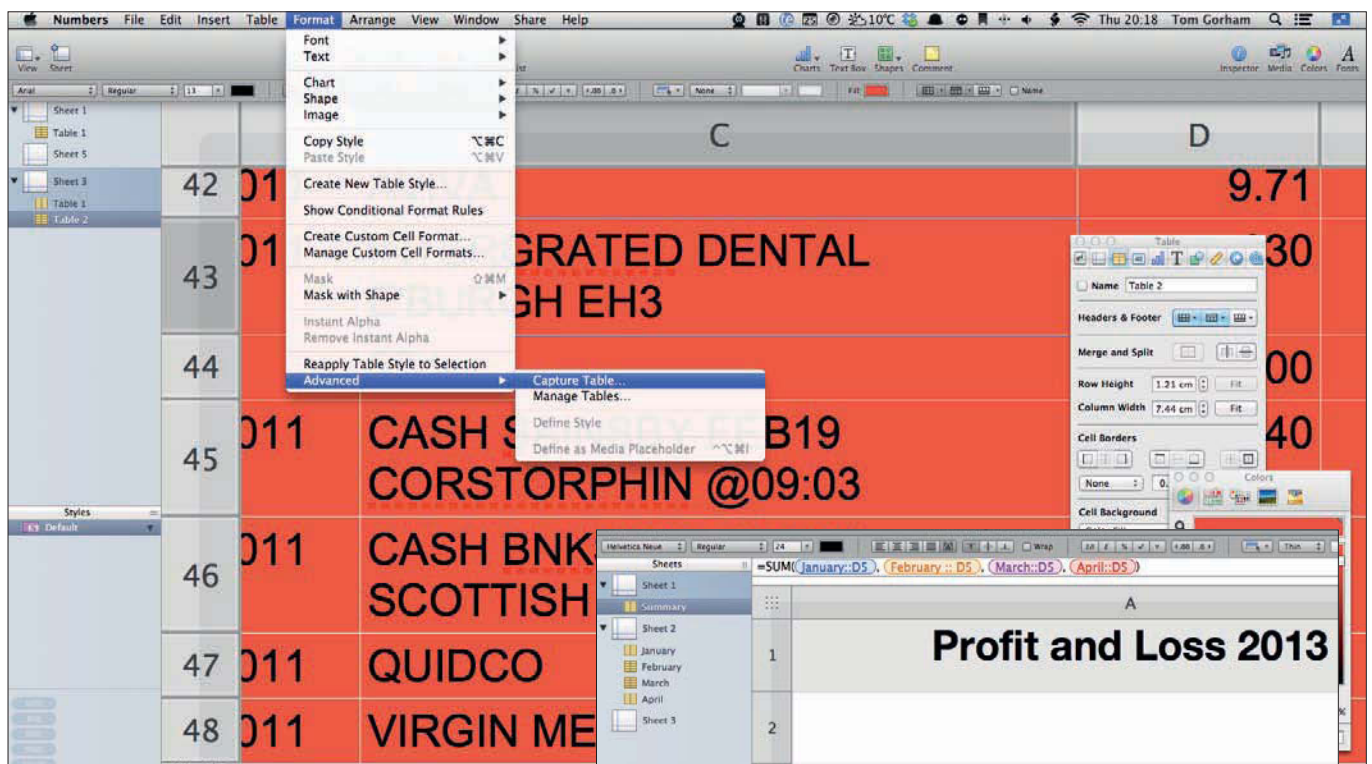
However, it's almost as easy to make your own styles. Using the Tables Inspector, you make visual changes to a table's background, borders and cell colours and then store it as a style that can subsequently be applied to any other table in the document. In the Styles Pane, click the downwards arrow

next to any existing style and choose Create New Style from the drop-down menu.

Styles are a great way to quickly create a consistent appearance for multiple tables in a document, irrespective of the size of the table or the data that it holds. One overlooked Numbers feature takes things to the next level, though: captured tables.

When you capture a table in Numbers, you don't just store its formatting, you also copy any data and formulas in it. That brings two big advantages. First, it makes building complex documents that include a series of structurally identical tables much easier, particularly if you repeat the same formulas in tables in several places in your document. Second, it means that when you come to enter data into these tables, it's held in the same relative cell references, which is handy if you need to reference that data, as it will always be located in the same place in each table.

IN SHORT, THE ability to capture tables is exactly the sort of feature that would help one sole trader startup I was speaking to recently. She wanted to create a simple digital cash book, with each month's takings kept in a separate table, and each table containing up to 31 columns that listed each day's takings and expenses. She then wanted to include a summary sheet that would calculate the profit to date based on the daily cash



↑ **Easy access** If you capture any table, its formatting and content will be stored in the Tables menu in the toolbar

→ **What's in a name?** In a summary sheet, naming tables, as here, makes it much easier to construct a formula, and tables are also more flexible as they can be moved around the document without risking breaking any cell references

Profit and Loss 2013	
1	
2	
3	Total Income
4	Total Expenses
5	
6	Total Profit to Date

book figures that she'd entered, and automatically update as she added cash book entries in the relevant month.

With the help of captured tables – and a little assistance from Autofill (see box, overleaf) – this is a five-minute job. You first set up a monthly table to use as a template, including any headers and calculation cells. Format it and resize it to suit. Then choose Format > Advanced > Capture Table. The selected table's content will be copied along with its formatting. From then on, adding more tables for subsequent months is a matter of creating a new sheet and selecting the captured table from the Table menu in the toolbar, which adds a new table to the current Numbers Sheet.

It's also relatively easy to create a summary sheet to pull data from each month. Thanks to the relative consistency of cell positions in each captured table, you know that if the sales total in January table is held in cell D5, it will also be held in cell D5 in the February table.

If you've created a dozen separate tables to track monthly takings, though, it's a good idea to first rename the tables to match the respective month. This not only makes it easier to work out where you are when you're stuck in the middle of a complicated formula, but also makes tables more flexible.

Here's how: if you created a summary table and entered a formula in a cell to add the values of the respective totals from a particular cell in each table, the formula could soon become

inscrutably hard to decipher, particularly if the tables are held on different sheets, as in the following example:

```
=SUM(Sheet1::Table2::D5, Sheet2::Table1 :: D5, Sheet3::Table 1::D5) and so on.
```

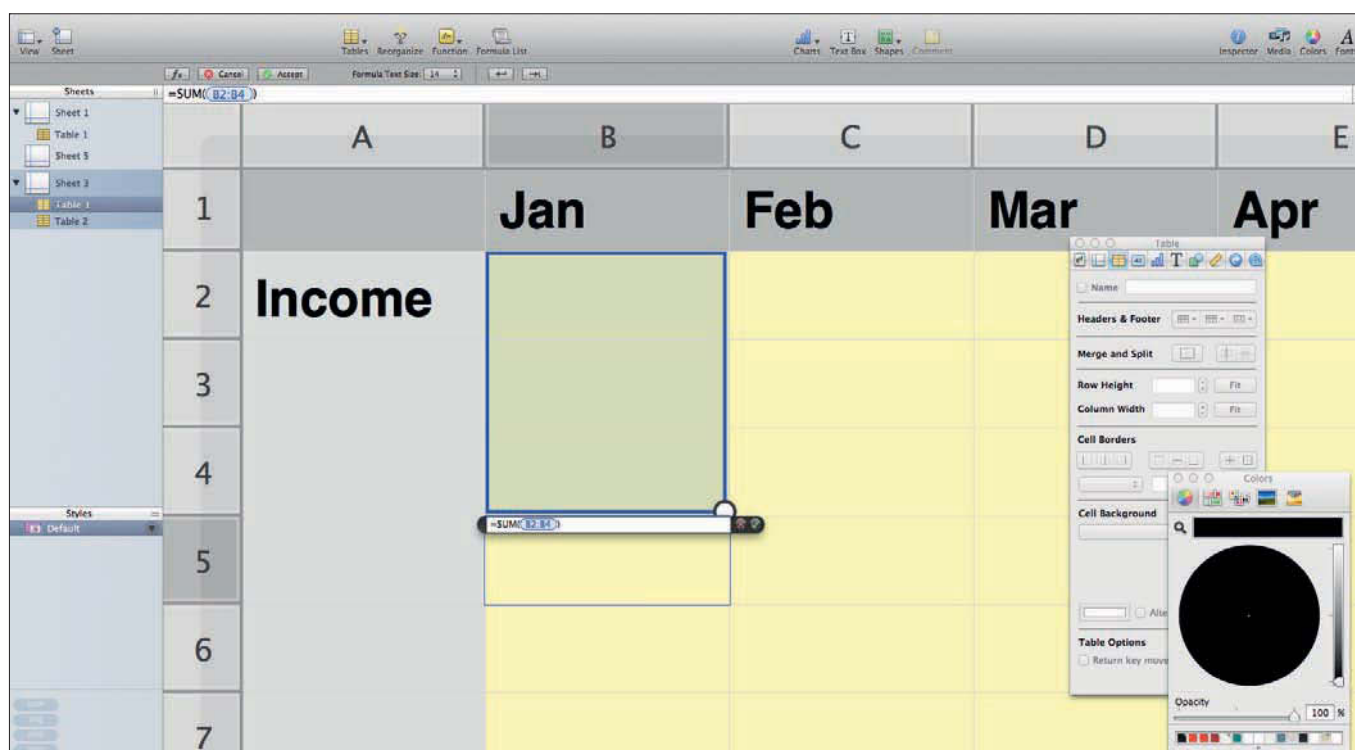
But by naming the tables (just double-click their names in the Sheet pane to do so), you can make the formula much simpler:

```
=SUM(January::D5, February :: D5, March::D5, April::D5) and so on.
```

You'll see that as long as the table name is unique in the spreadsheet, you can omit the sheet name. This naming approach has another benefit: you can move tables between sheets, and the cell references in the formula will still work without adjustment.

Once you've created this first formula, life gets easier: you can copy and paste that formula elsewhere in the summary table and, as long as the summary table shares the same layout as the monthly tables, it will pull through the other totals from each month.

While a cash book is an excellent use for captured tables, it's by no means the only one. You could also use it for tracking invoices – with the total of each invoice automatically →



↑ **Doing the maths** The beauty of captured tables is that they copy formulas as well as formatting, enabling you to create repetitive sheets without duplicating work

CAPTURED TABLES → added to a summary total on the front page – or teachers could use it to keep tabs on pupil performance at school.

Captured tables have a couple of weaknesses. They're inflexible if you want to change a table later. The captured tables don't update if you make changes to one and, unlike styled tables, their appearance can't be adjusted uniformly. What you can do is style your table before capturing it. Then to change the appearance of the table, you simply make the changes to a selected table, select the arrow in the Styles list and choose 'Redefine Style from Table'. All existing captured tables based on that style will be adjusted in the same way. New captured tables will still be based on the original style, though, but you can reapply the style to multiple tables by selecting them all, picking the relevant style in the Styles pane and choosing 'Clear and Apply Style' from the drop-down menu. ■

	A	B	C
1	Jan	Feb	Mar
2			
3	A	378	364
4	C	278	345
5	E	300	456
6	G	315	546
7	I	372	345
8	K	400	434
9	M	502	345

↑ **Get in line** Numbers is smart enough to increment months when you write 'January' in a cell, then drag its marker across to fill other cells. If you shorten the month name, it'll follow your lead

One good cell deserves another

MOST NUMBERS USERS will attest that the quickest way to build a table that features any sort of data series is to use the Autofill feature. This enables you to quickly increment numbers in a row or column of cells by selecting the first two numbers of series in adjacent cells, and then dragging the marker at the bottom of the selection across the range of cells to which you want to increment. But Autofill can do more: it can copy formulas. Drag the marker at the bottom of the cell containing the formula to copy it across a range. You can also increment days of the week, months, dates and even letters of the alphabet this way. Select more than one cell before dragging the marker and it'll try to continue a pattern.

**Everything you need to know
about the iPhone 5**



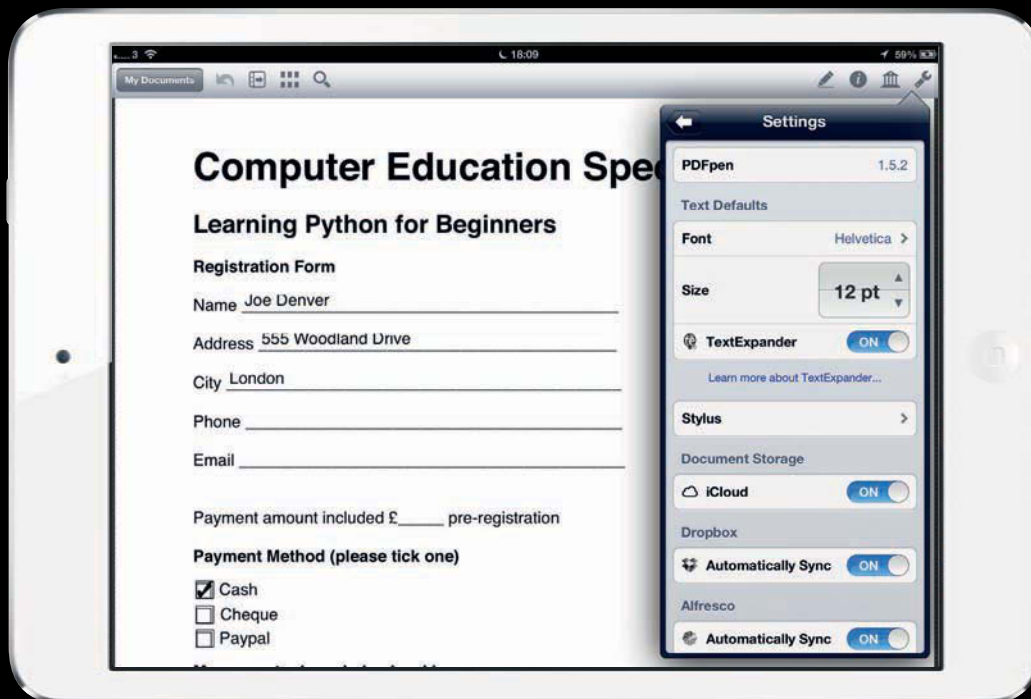
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STEP BY STEP

→ On the move

PDFpen for iPad enables you to edit, adjust and sign PDF documents directly on your tablet. It's one way users might complete your forms, but there are plenty of others, including the free Adobe Reader and the Mac's default Preview app



MARK HATTERSLEY is a technology writer. His latest books, *Mac Secrets* and *The Google Plus Companion*, are out now.

**Tools required**

✓ Mac ✓ PDFpenPro
 ✓ Apple Pages or
 Microsoft Word

CREATE AN INTERACTIVE PDF

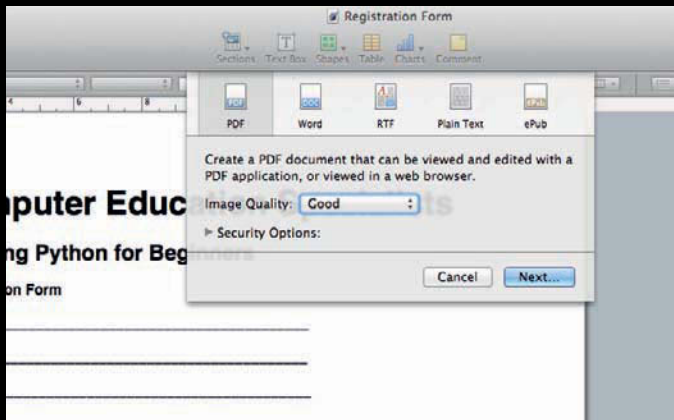
Using a tool such as PDFpenPro, you can make forms for others to fill in

ADOBE'S PDF FORMAT, as you may have noticed, has become the de facto replacement for paper documents. These days, you're more likely to receive a form, contract or instruction manual as a PDF than in a paper-based format. This is fine for manuals, which can be read on a Mac or iPad, and are better than paper because they offer searchable text and linked indexing. PDF is also better for the environment, not to mention cheaper and more convenient for companies.

Where things get a little more complex, however, is when you need to interact with documents to complete or verify them – forms, contracts, and so on. Such features have been

part of the PDF specification for years, but most 'PDF reader' software is indeed designed only to read a PDF, not add functionality to it. Happily, software such as Acrobat Pro and the more reasonably priced PDFpenPro (see p104) makes it easier to edit PDFs. Best of all, it enables you to create a PDF document with form elements – text boxes, checkboxes and radio buttons – that make it easy for anybody to add information, using any good modern reader app, and return it to you.

In this tutorial, we'll look at how you can design a form in Apple's Pages app, turn it into a PDF, and edited in PDFpenPro to produce an interactive document ready for sharing.



CREATE A FORM Start by creating a form using whatever app you prefer, such as Microsoft Word or Pages. Here, we've made a registration form for a computer course in Pages. Leave spaces for checkboxes, radio buttons and a Submit button. Export it as a PDF.

Computer Education Specialists

Learning Python for Beginners

Registration Form

Name John Doe

Address

City

Phone

Email

Payment amount included £ pre-registration

Payment Method (please tick one)

☐ Cash

☐ Cheque

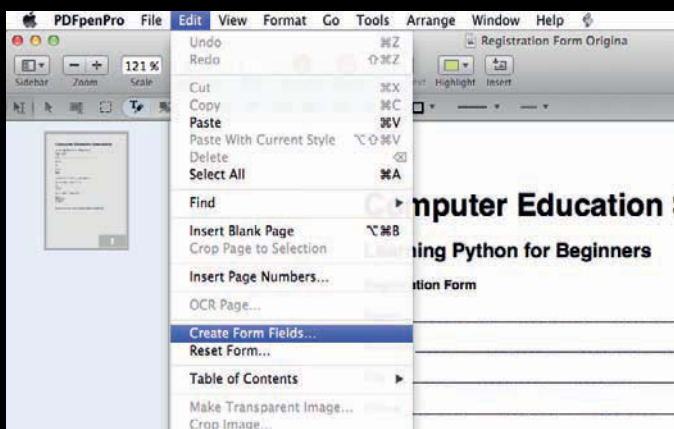
☐ Paypal

My computer knowledge level is:

☐ Basic

☐ Intermediate

ADD TEXT MANUALLY Open your PDF form in PDFpenPro. If you receive a document like this from someone else, as a flat form, you can use the Text button in PDFpen's menu bar to add text (and other elements) manually, but we're going to make it smarter and add interactive elements so that anyone can fill in the form easily.



CREATE TEXT FIELDS The first step is to add text fields to a document so users will be able to enter text. Go to Edit > Create Form Fields to automatically search for text entry points in the existing page layout – it'll find boxes and underlines in your document. Drag the handles to adjust the size of the text fields.

Name

Address

City

Phone

Email

Payment amount included £ pre-registration

Payment Method (please tick one)

☒ Paypal

My computer knowledge level is:

☐ Basic

☐ Intermediate

☐ Advanced

Click Submit to return this form and payment

EDIT THE TEXT We're going to replace the cash, cheque and PayPal options in this form with new clickable boxes. It'll be simpler to recreate the text labels than to align the boxes with the existing text. So highlight 'Cash', click Correct Text and delete it to remove the text. Repeat for the other options.

Registration Form

Name

Address

City

Phone

Email

Payment amount included £ pre-registration

Payment Method (please tick one)

☐ Cash

☐ Cheque

☐ Paypal

My computer knowledge level is:

☐ Basic

☐ Intermediate

☐ Advanced

Form Element Properties

Name: Knowledge Level

Default Value:

☐ Character Limit

☐ Required

☐ Custom Text

☐ Check by default

☐ Size to fit

☐ Scroll text

Name	Value
Basic	Basic
Intermediate	Intermediate
Advanced	Advanced

CHECKBOXES AND LISTS Click Check Box in the toolbar and draw a square underneath Payment Method, then enter 'Cash'. Repeat for 'Cheque' and 'PayPal'. You can click Inspector and use the Alignment menu to line up the boxes. You can also create drop-down menus using the Choice button and Form Element Properties tab. Tap the '+' button to add, and enter a name for each selectable option.

Name Joe Denver

Address 555 Woodland Drive

City London

Phone

Email

Payment amount included £ pre-registration

Payment Method (please tick one)

☒ Cash

☐ Cheque

☐ Paypal

SAVE THE PDF Because you're working on a PDF already, you don't need to export the final file to a special format. Just save the PDF. You can then email it, for example, to other users, and they'll be able to fill out the form using any decent PDF reader, such as OS X's Preview or Adobe Reader, and return it to you completed. ■

EMAIL HELP@MACUSER.CO.UK

Q&A



HOWARD OAKLEY has used Macs in science and medicine for over 20 years, and has developed commercial software.

THEY CAN HELP Apple's technical support system, Knowledge Base, is always available online. At support.apple.com, you can search for answers on any Mac or iOS topic. If you need help with a particular product, enter its serial number at selfsolve.apple.com and Apple will show you all the support, warranty and repair options. (There's a link here to details of where to find the serial number, too.) Or try expresslane.apple.com to narrow down the options quickly. For user manuals, see support.apple.com/manuals.

WE CAN HELP If you have a specific technical problem or query, write to Howard at help@macuser.co.uk. Explain the issue in full, giving details of your hardware and software. You can also reach us by post at Help, MacUser, 30 Cleveland Street, London W1T 4JD. Please note that we can't answer questions in person at this address.

YOU CAN HELP Some problems are rare, but few are unique. At discussions.apple.com you can ask questions, search others' answers and help out yourself.

► THE LONG VIEW ►

Make no mistake

Economists rely on data to decide on fiscal policy, but just how accurate is it?

THERE CAN BE few more pervasive and life-changing decisions made in recent years than the choice of fiscal austerity. Hardly any government in the world has been allowed to continue borrowing and spending: millions have been laid off, countless contractors have gone to the wall, and we've all endured the chill of recession. Although not the sole evidence driving these swingeing cuts, one of the most influential pieces of research that has kept politicians to this painful course has been that of Reinhart and Rogoff (2010). Analysing national economic data, they concluded that countries with public debt of over 90% of their GDP showed significantly lower growth rates. The last time the UK was in that danger zone was 1965, and from 1987 onwards, with the tough policies of Thatcherism, we had kept close to the idyllic zone of 30% associated with highest growth outcomes. However, from 2008 our debt climbed alarmingly, reaching 60% of GDP in 2011: without a stiff dose of austerity we could have rapidly passed into danger.

In April, Herndon, Ash and Pollin (peri.umass.edu/236/hash/31e2ff374b6377b2ddec04deaa6388b1/publication/566) re-analysed Reinhart and Rogoff's study, identifying a basic error in the Excel spreadsheet used to manipulate the data, unexplained data omissions and controversial weighting. They concluded that any fall-off in growth rate does not occur until debt reaches 120% of GDP, the crazy realms of the Greek economy and hardly likely in the UK without sustained government incompetence. Reinhart and Rogoff have accepted their Excel blunder, but stuck to their other guns, and no doubt the many governments and international institutions that have relied on their papers will prove equally unrepentant.

It is this sort of issue that worries me about Simon Rogers, of the Guardian Datablog (guardian.co.uk/news/datablog) and 'data journalism'. His book, *Facts are Sacred*, holds the same

fascination inherent in numeric compilations like Wisden, but appears riven by the naïveté found in those who have worked little with real experimental or observational data.

To equate measured or reported data, or implicit relationships within data, with facts reveals a dangerous overconfidence. In 40 years of measuring simple and abstruse variables, I have learned humility in my own data, and suspicion in that of others. First, you must know and allow for the error in measurement itself; in the case of economic indicators, drilling down to discover how the figures are generated makes you realise that many are little more than educated guesses. Furthermore, you need to know not just the single best estimator (usually a mean or median) of each data point, but the spread about each point resulting from error and variance. Simon Rogers' data 'facts' seem worryingly free of spread or confidence intervals, but enticingly crisp.

EVEN WHEN ARMED with reliable data, it is so easy to draw misleading conclusions. When I was first learning serious statistics, I observed an exceptionally strong relationship between the number of colour TVs in the UK and the suicide rate. It would have been too easy to assume that relationship was causal, in the same way that others have assumed that very high debt ratios cause low growth rates.

Aside from this now infamous Excel error, looking at the scatter of data in Herndon, Ash and Pollin's analysis there are clearly many economies that have enjoyed high growth rates at times when they have also had very high debt ratios.

In reality, any association seems too weak to bank your economy on. Are we really confident that economists who fail to spot their computational cock-ups are a steady hand guiding the tiller of international fiscal policy?



→ Alarm bells

Setting your Mac to start up automatically might seem a neat idea, but it can bring problems that you won't be ready for

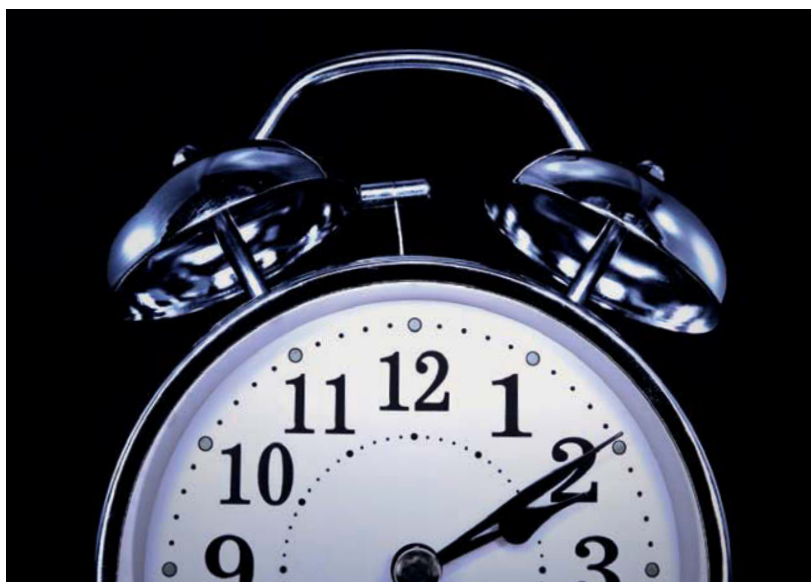


IMAGE ISTOCKPHOTO.COM/DAVINCIDIG

Wake-up call

From Ken Hare

Q Although I've disabled my iMac, running Mountain Lion, from starting up automatically, it persists in doing so every day at 9am. When it does, it often hangs with the beachball of death immediately after I've entered my password. How can I return it to normal?

A You first need to remove the preferences file containing that startup setting. You should find it in /Library/Preferences/SystemConfiguration/com.apple.PowerManagement.plist. Move that to a different location, authenticating when prompted, then restart. Open the Energy Saver pane and set it up the way that you want it. If the problem persists, restart holding the Shift key down to disable third-party extensions and clear various system caches. Use the usual generic remedies, including repairing permissions and startup disk with Disk Utility. Any continued beachballing should take you to browse your log in Console: that will most likely contain a long series of crash or error reports that will lead you to the service that is at fault. Another generic fix is to download and install the most recent Combo updater for Mountain Lion.

Access denied

From John Taylor

Q My iMac running Mountain Lion keeps losing its mail connection. The Mail app then prompts me for my password, which isn't accepted, although I can still access my ISP's webmail facility, which does accept the password. Is my ISP at fault, or Mail?

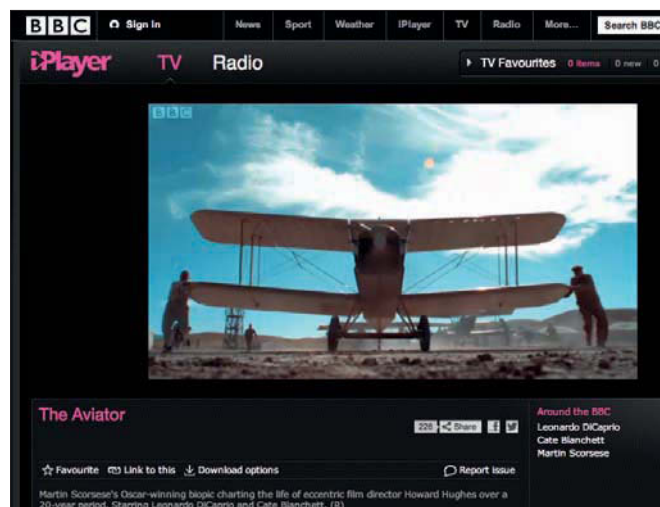
A This is almost certainly not a problem with Mail, but what you're doing is making a minor glitch more persistent and troublesome. Open Mail, check your account is set up with the correct user name and password, and that its other settings conform to those recommended by your ISP on its support site. Also check in the Network pane that you've set your ISP's recommended Name Servers, or a robust alternative such as OpenDNS. The next time you try to check your mail and the connection can't be made, resulting in the dialog prompting you to re-enter your password, simply click on the Cancel button. Don't enter your password again, but leave Mail alone for a few minutes before you try reconnecting. Chances are that the problem resulted from your ISP's authentication servers being heavily loaded, and a little later it should work fine again.

Foreign policy

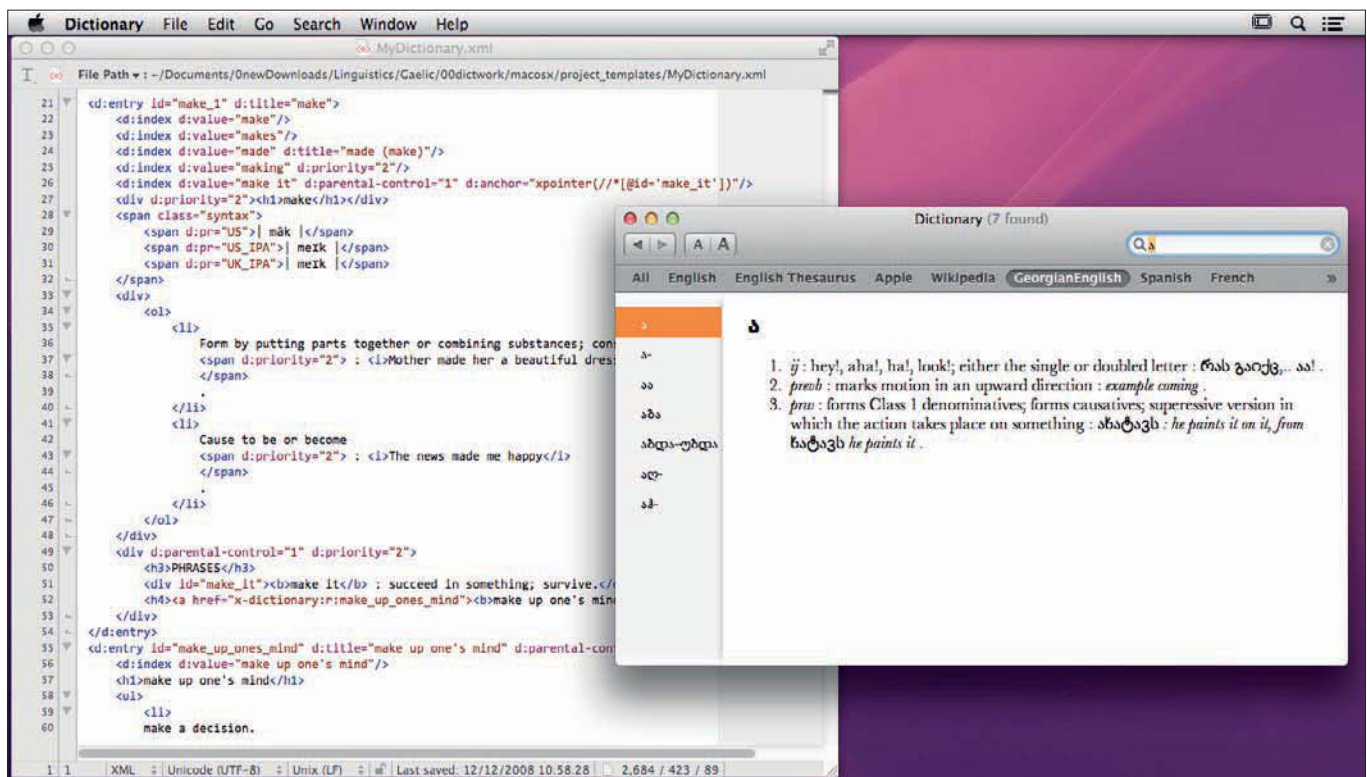
From Stephen Sturgess

Q I downloaded an excellent BBC drama to send to an American friend in Italy, as he says he can't watch it on iPlayer. When I try to play the movie here, Flip4Mac complains that its WMV DRM is unable to play the protected content. How can I help my friend to watch this movie?

A The best way is to locate a European-region DVD and send that to him, as he will be unable to play this protected content, at least until the BBC adds Italy to the list of permitted countries for iPlayer. This is documented at iplayerhelp.external.bbc.co.uk/help/outside_the_uk. It appears that the only app that can play downloaded encrypted BBC content, such as this movie, is iPlayer. When launched, it checks whether your current IP address is in the UK, and whether the movie was downloaded to a UK IP address. Only when it satisfies itself that you are within the BBC's terms and conditions will it decrypt the content and play the movie, and you can be fairly certain that unless current rules become more liberal, your American friend will be unable to watch that movie in Italy, or in the US.



↑ **Terms and conditions apply** The BBC makes available strictly licensed content such as movies through its free iPlayer, but restricts overseas access



↑ **By definition** With the aid of a little XML and Apple's free Xcode SDK, you can build your own dictionaries and access them in the Dictionary app

Big backups

From Ian Kennedy

Q When exploring external drive, I discovered a load of files with bizarre names like `cp.properties` and `cpbf0000000000000288581`. These take up more than 30GB, so I'm keen to trash them, but when I try to remove them, they reappear. Are they used by OS X?

A No: those files are backups created by CrashPlan, as detailed at crashplan.com. The only way to remove them is to disable or uninstall CrashPlan. Consider whether you wish to use the belt of Time Machine, the braces of CrashPlan, or both belt and braces.

⚙ Did you know?

VERSIONS OF APPS bought from the App Store often keep their files in slightly different locations to support sandboxing. Look for a folder named after the developer and app inside `~/Library/Containers`. You'll find documents, support components and preference settings there.

Losing battle?

From Mike Bird

Q I need to access information that I recorded in Evernote 2.0. However, I can't access it using my original password nor find its files anywhere. Are they lost?

A Older versions of Evernote, not bought through the App Store, keep their documents in `~/Library/Application Support/Evernote`. Some might use `~/Library/Application Support/accounts/Evernote`. Time Machine backups should use the same path. iOS uses that named online Evernote account unless you have a Premium Account. If all else fails, contact Evernote.

Roll your own

From Peter Christie

Q How can I set up a dictionary of placenames that I can then access throughout my applications?

A One of the neat features about more recent versions of OS X is support for custom dictionaries in the Dictionary application. Although there are alternatives, and individual apps support their own lightweight user dictionary formats, the most universal approach is to cast your content into Dictionary's XML format and convert it into a standard OS X dictionary using Apple's free Xcode, available from the App Store. At its most basic, the XML format required is quite simple, as in this single entry:

```
<d:entry id="lee_on_the_solent" d:title="Lee-on-the-Solent" d:parental-control="1">
  <d:index d:value="Lee-on-the-Solent"/>
  <div d:priority="2"><h1>Lee-on-the-Solent</h1></div>
  <ul>
    <li>
      seafront town between Warsash and Gosport on northern shore of eastern Solent. Flat and replete with elderly cyclists.
    </li>
  </ul>
</d:entry>
```

Once you have built the content and created your dictionary, all you have to do to install it is to place a copy of the compiled dictionary in the Dictionaries folder in one of your Library folders. Once it's there, you can add it to Dictionary's portfolio by enabling it in its preferences. ■



PRIMER



IMAGE ISTOCKPHOTO.COM/PASHALGNATOV

Finding errors in data

⚙ How to detect and correct errors in data and derived calculations

IT IS ALL too easy to put blind faith in numbers. The more precise they appear, perhaps with several digits after the decimal point, the more accurate they must be. But if the data has been entered incorrectly, or the formulas used to calculate results from it are flawed, that apparent accuracy only blinds you from spotting errors.

Take a careful look at a recent spreadsheet or database that you've been using. See whether it performs any **checks** to ensure that, if you do inadvertently put garbage in – perhaps a body weight in pounds instead of kilograms, or missing the decimal point out of a monetary value – your error is highlighted. If your sole check is the operator's eyeball, then your efforts will all too often be rewarded with garbage results.

Even if you are one of the few who meticulously checks the range of **input data**, have you ascertained how your calculations respond to values at the limits of the possible? If an entry is allowed to be zero or negative, are all your **formulas** capable of handling such values? How do you test whether your work delivers the results that

you think it should? When you last upgraded its host spreadsheet or database application, did you check that those calculations were unaffected?

To be able to put any trust into the numbers that come out at the other end, ensure that every single value entered is accurate. A powerful tool for doing this is to check that each lies within its **expected range**: if you're entering adult human body weights in kilograms, then you shouldn't accept values below, say, 20kg, nor above 560kg, the current world record.

However, you should also warn if values are within that range but appear to be improbable, perhaps less than 50kg or more than 200kg. Databases are generally better-equipped to handle range checking, as they can be set to refuse entries outside a given range, and you can also set up warnings for **extreme values** within those. Controls aren't as flexible in spreadsheets, but you must still warn the user.

If you only enter a small number of values at any occasion, then it shouldn't be difficult to implement practices for **accurate**

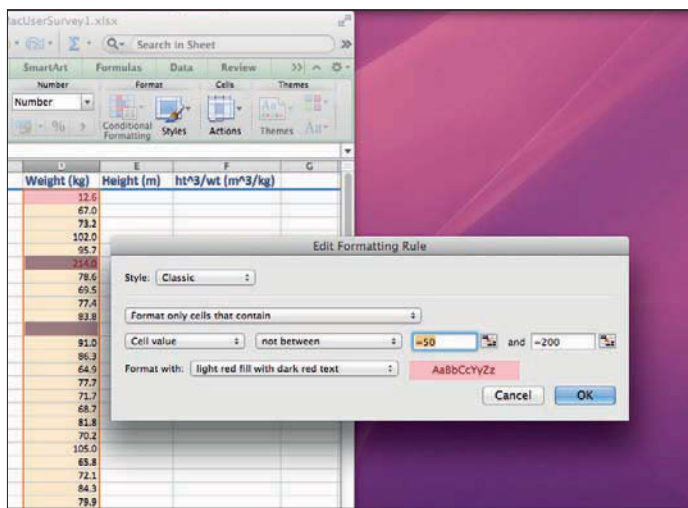
entry, such as ensuring that you don't **transpose digits**, turning 153 into 135, perhaps.

Where substantial amounts of data have to be entered, you need to employ more rigour. One proven technique is to get two different operators to key the same data in separately, then to **compare** their entries: where they concur, you accept the entered data as being correct; where they differ, you enter the value a third time. This can be invaluable when entering large amounts of handwritten data – for example, from paper questionnaires.

ENTERED VALUES AND formulas should be formally separated, too, so that there's no risk of **errors** in calculations changing the **raw data**. If you're working with a large dataset, you would do well to save or export the values themselves once they have been thoroughly checked, so that if anything goes wrong you do not have to re-enter your data or check them again.

Every formula, calculation, or manipulation applied to that data then needs to be checked assiduously. Within each →

TAGGED AS: ERROR CHECKING, DATA, DERIVED CALCULATIONS, DATABASES, SPREADSHEETS

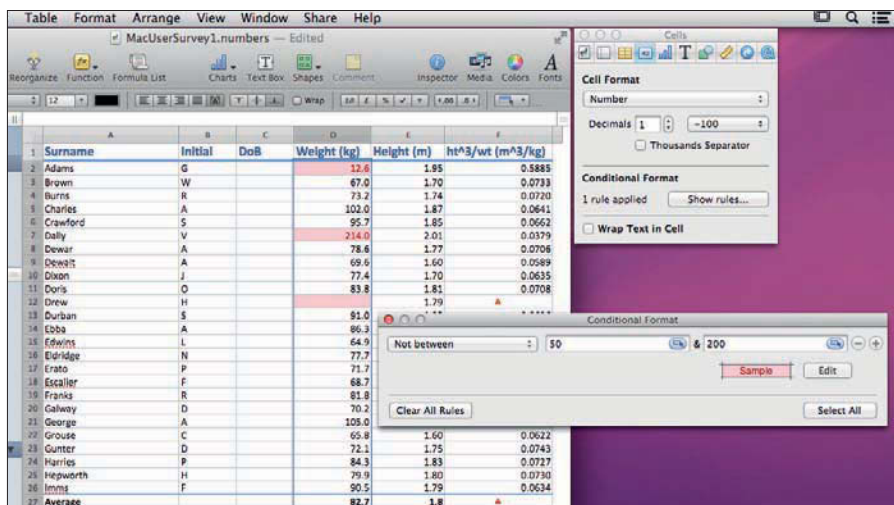


← Stay in range

Traditional range checking is best performed in Excel using its Classic form of conditional formatting

↓ Hot dates

Numbers has an almost identical feature for normal range checking, but is somewhat easier to use with dates



ERROR PREVENTION → formula involving units of any kind, ensure that it uses **consistent units** and those in which your data is delivered. **Conversions** between Imperial and metric measure are a common source of error, having caught out NASA on some spectacular occasions. Even staying metric throughout, you must get the units correct, as it's all too easy to be out by a power of ten. Examine all your formulas, **rewrite** them with the values in a different order – for example, turning $(X*Y)/Z$ into $(X/Z)*Y$. Another important crosschecking technique is to arrive at totals (or similar) in a different way: as well as totalling each column and adding those column totals, total each row and check that the sum of the row totals is the same as that of the column totals.

Formulas and calculations are inherently vulnerable to many different forms of error, so they must never be used carelessly. **Copying and pasting** formulas from one spreadsheet cell to another is quick and convenient, but if you don't check that the pasted formula is exactly correct, it becomes dangerous. If you can, put all formulas into protected cells in a spreadsheet, so it's harder to blunder in and mess them up.

IF AVAILABLE, USE reputable and well-documented **software** instead of a general-purpose spreadsheet. This is particularly true for **statistics**: while spreadsheets can be a quick and easy way of generating averages and simple statistics, it's very dangerous to write sophisticated statistical formulas into a spreadsheet, and sooner or later that will catch you out. Some formulas work well as long as the values remain within certain limits, but become grossly inaccurate if those limits are exceeded.

Sometimes spreadsheet implementations of certain **mathematical functions** can become error-ridden if used on very low or high values, and can introduce numeric errors. Reputable statistical and mathematical systems usually document such issues in their reference manuals, and may use several different methods of calculating functions to improve reliability.

While maths using only whole numbers should always remain accurate, there's inherent approximation wherever you use **floating-point values** and thus the capacity to accumulate error. It isn't unusual in spreadsheeting to come across slight error, such as an answer being given as 5.99998 instead of 6.0. This normally results from the difficulties in performing precise maths in binary, and having to convert from **binary** representations of floating-point numbers back to **decimal** ones.

However, these small **errors** can **accumulate** until they become substantial if the end result relies on many formula steps each

Range checking in spreadsheets

GOOD DATABASES ALLOW you to **limit** entered values to within certain **ranges**, but **spreadsheets** can normally only warn you visually if a cell doesn't meet pre-determined criteria. Although this makes it easier for erroneous data to slip into a spreadsheet, it is still much better than not having **range checking** at all.

In Microsoft **Excel**, this is known as **Conditional Formatting**, invoked from within the Format menu or from the toolbar. For example, if you wanted to ensure that body weight was above 50kg and below 200kg, select the cell(s) to be checked, bring up the Manage Rules dialog using that menu command and click the '+' button to add a new rule. Using the Classic style, set it to Format only cells that contain a Cell value not between 50 and 200, then click OK. Excel offers other valuable checks that can be performed in its bewilderingly **extensive rules**, such as for duplicates among unique identity numbers, and the use of **limits** set in other spreadsheet cells.

Apple's more recent **Numbers** has a similar feature of the same name, but is rather more **easily accessed**. Select one or more cells or cell ranges, and click on the Cells Inspector tool in the Inspector. Click on the Show Rules... button in Conditional Format to bring up the Conditional Format rules view. In the 'Choose a rule' pop-up menu select the 'Not between' item, and enter your limits of 50 and 200 respectively. Click the Edit button to set the highlight style for cells that fall outside that range, then the Done button to apply it. Numbers provides strong support for simple **date checking**, which is valuable given the multiple errors that can occur when entering dates.



Spreadsheet auditing

MICROSOFT EXCEL HAS long had a suite of tools to audit formulas and check for other related errors. Although not as extensive or sophisticated as third-party tools currently available only for Windows versions of Excel, they're still a great help and shouldn't be ignored. Apple's Numbers still lacks equivalent tools, although a useful way of checking formulas is to reveal them using the **Formula List** tool.

Before trying to use Excel's auditing tools, if necessary unprotect your spreadsheet via the **Protection** command in the Tools menu and select the **Formulas** item in the Ribbon, which puts the **Audit Formulas** tools in the toolbar. Select the cell that you wish to audit, and you can show all those cells on which it's dependent and all those that depend on it. If you're auditing a cell containing a formula, that will clearly depend on the cells used to compose the formula, but will have no meaning if the cell contains a value in its own right.

Cells containing errors or NaN values are normally accompanied by an icon of a black exclamation mark on a yellow background. Hover the pointer over this and the **tooltip** will explain the nature of the error, while a pop-up menu appears to the right of the icon. This provides additional help in dealing with the error, including a command to **Trace Error**, which functions similarly to the auditing tool in revealing cells on which it's dependent. It also gives access to the **Error Checking** options in Excel's Preferences.

There are many websites offering help with Excel formulas. Among the most comprehensive is Contextures (contextures.com/tiptech.html), which has hundreds of valuable tips. For those involved in financial modelling using spreadsheets, papers detailing best practice are at eusprig.org/best-practice.htm.

MacUserSurvey1.xlsx

Function: Insert, AutoSum, Formula Builder, Reference, Show, SAS1, Switch Reference, Insert Name, Audit Formulas, Calculation, Settings

Search in Sheet

126

Show arrows that indicate what cells are affected by value of selected cell

	A	B	C	D	E	F
	Surname	Initial	DoB	Weight (kg)	Height (m)	ht^3/wt (m^3/kg)
2	Adams	G		126.0	1.95	0.0588
3	Brown	W		67.0	1.70	0.0733
4	Burns	R		73.2	1.74	0.0720
5	Charles	A		102.0	1.87	0.0641
6	Crawford	S		95.7	1.85	0.0662
7	Dally	V		114.0	2.01	0.0712
8	Dewar	A		78.6	1.77	0.0706
9	Dewalt	A		69.5	1.60	0.0589
10	Dixon	J		77.4	1.70	0.0635
11	Doris	O		83.8	1.81	0.0708
12	Drew	H		76.3	1.79	0.0752
13	Durban	S		91.0	1.85	0.0696
14	Ebba	A		86.3	1.86	0.0746
15	Edwins	L		64.9	1.69	0.0744
16	Eldridge	N		77.7	1.70	0.0632
17	Erato	P		71.7	1.74	0.0735
18	Escaller	F		68.7	1.72	0.0741
19	Franks	R		81.8	1.88	0.0812

Problem solving

Tools built into Excel can reveal those cells on which a given computation relies to help you trace problems

Error detection

Problems flagged with the standard icon can be traced using its pop-up menu, helping you work out where any error is

MacUserSurvey1.xlsx

Search in Sheet

fx =E9*E9*E9/D9

	B	C	D	E	F	G
	Initial	DoB	Weight (kg)	Height (m)	ht^3/wt (m^3/kg)	
G			126.0	1.95	0.0588	
W			67.0	1.70	0.0733	
R			73.2	1.74	0.0720	
A			102.0	1.87	0.0641	
S			95.7	1.85	0.0662	
V			114.0	2.01	0.0712	
A			78.6	1.77	0.0706	
A			77.4	1.70	0.0635	
O			83.8	1.81	0.0708	
H			76.3	1.79	0.0752	
S			91.0	1.85	0.0696	
A			86.3	1.86	0.0746	
L			64.9	1.69	0.0744	
N			77.7	1.70	0.0632	
P			71.7	1.74	0.0735	
F			68.7	1.72	0.0741	
R			81.8	1.88	0.0812	

#DIV/0!

Divide by Zero Error

Help on this error

Trace Error

Ignore Error

Edit in Formula Bar

Error Checking Options...

of which suffers such small inaccuracies. You may be able to reduce this by assembling the stages into a smaller number of formulas, or by avoiding repeated methods of **estimation** such as iteration. Professional-quality maths and statistics software is usually very careful to minimise this problem, so what you're struggling with in Excel may work much better in Mathematica, Maple or R.

When numerical problems occur in calculation, you're likely to be returned an **error value**, such as a **NaN** (not a number), which might represent the outcome of trying to divide by zero, for instance. Rather than leaving such errors to propagate through your calculations to the output, consider trapping

those problems and pointing out where the error has been generated, so that it can be fixed. Test this by deliberately putting in erroneous values and seeing what happens and how effective your traps prove to be.

Once you've constructed your formulas and built confidence in their performance, assemble a **test suite** of examples to validate the formulas now and in the future. This should include data representing common values, and those testing the limits of use, and should be compared against longhand calculations. Document your methods, the validation suite and ensure that testing is repeated every time that the host software is updated. ■

Howard Oakley

PRODUKT

ROUNDUP

MacBook bags

£106

Booq

£195

Knomo

£55

STM

£75

STM





£215
Knomo



£60
Thule



WORDS ADAM BANKS IMAGE FREDRIK OHLIN FLICKR.COM/PHOTOS/FOHLIN (KOBÉ)

Booq Mamba Courier 15

▶ This satchel is finished in a tough waterproof fabric made from jute. It's reasonably light for a fully padded 15in bag, at a fraction over a kilo, and its integral strap has a long matching bumper to cushion your shoulder, while the substantial carrying handle is generously padded. Though boxy, it's quite lightly structured, giving it a pleasantly crumpled look.

Getting into the Mamba is slightly fiddly, because the straps each have to be unhooked sideways; they're not adjustable, so if you overstuff the bag you'll have trouble fastening it. On the plus side, it's unlikely a passing thief will open it without you noticing; and in case you lose the whole thing, it comes with a Terralingq serial number that, once registered, enables anyone who finds it to find you.

Inside, a rather luxurious deep red nylon lining forms a firmly padded main section for your 15in MacBook, in front of which are pockets suitable for a full-size iPad, a couple of smaller flat items, and three pens or styluses. There's a 5cm-deep section for accessories, papers and whatever, plus a full-width zipped pocket at the front (under the flap) and an open pocket at the back to keep a magazine and your iPhone handy, if you're brave enough to stow it there.

Also available for 13in MacBooks and in a compact vertical format for the 11in MacBook Air, the Mamba is a distinctive, spacious and highly practical bag.

£106 inc VAT

From booqbags.co.uk





Knomo Henderson 15in Slim

There's something of the 1950s about this superbly understated leather briefcase. It's elegant from a distance, yet convincingly rugged close up, with a shiny heavy-duty zip closing the main compartment between the handles. These are rounded off by very firm internal padding, in traditional handbag style, for a comfortable carry; a detachable webbing strap is also supplied, but has no bumper and seems a bit of an afterthought.

Despite its beautifully soft finish, the leather of the front panel – there are three colour options – is tough, and inside there's more protection for your 15in MacBook in the form of Knomo's deeply quilted matt orange lining. The rest of the storage is in a zipped front pocket, whose matching lining has compartments for an iPhone, pens and sundries. An open pocket at the back will keep your magazine accessible. The rear panel is recycled PET rather than leather, but the attractive and hard-wearing material helps to keep the bag feeling neat.

You'll have to love this bag to invest in it, but there are plenty of reasons why you would, and it'll outlive your Mac.

£195 inc VAT
From knomobags.com/uk



STM Impulse Medium Laptop Backpack

This is a proper rucksack-wearer's rucksack. You'll notice the four huge padded inserts on the back, designed to ensure you stay comfortable whatever you sling inside. Like the Linear, which also makes its debut in STM's new Velocity range, the Impulse is finished in strong grey polyester and has a fully padded MacBook compartment and an iPad pocket, both lined in soft orange fabric, while the rest of the interior is mushroom. The overall effect is casual yet smart.

Between the two main kit compartments is a deep central section for papers or other extras. But that's just the beginning of the Impulse's rabbit warren of pockets. Forward of your MacBook is a flat pocket for a folder or magazine, and in front of that a larger gusseted space that could take a spare shirt or jumper if not more paperwork. Then we come to the front pocket, which has an A5 zipped compartment, slots for pens and sundries, and another space at the front; the outer zip goes around two sides, so you can open it just enough to grab something or all the way to hunt. Finally, there's an extra kit pocket in the gusset at the lower edge that's perfect for a bulky mains adaptor, and yet another sneaky pouch on each side, one of them zipped.

The Impulse isn't so huge you'll think you're going on holiday, but feels spacious, secure and comfortable.

£74.95 inc VAT
Info stmbags.com.au



STM Linear Medium Laptop Shoulder Bag

Made of warm grey 300 denier polyester, this is a neat vertical (or 'north-south') messenger bag in a more outdoorsy style. It's designed to be toted by the detachable padded shoulder strap, but there's also a padded carrying loop at the rear, as well as a strong strap that could slip over a suitcase handle. The soft orange lining is water-resistant, making the whole thing feel rain-proof, and the main MacBook compartment, closest to your body, is generously padded.

The two straps that hold the front flap securely closed are fully adjustable and unclip with a simple press. Beneath is a zipped front pouch with enough give for bulky accessories, several flat pockets and a lanyard; then a full-size pocket that'll hold an A4 magazine, though not fully covered; and behind this a fully lined pocket for a full-size iPad, helpfully labelled with a picture of an iPad. If you have yet more bits and pieces, there's a vertically zipped pocket in the flap too.

For a compact and affordable dual purpose bag, the Linear is very well thought-out, giving you space for all the essentials in a lightweight form.

£54.95 inc VAT
Info stmbags.com.au





EDITOR'S CHOICE

Thule 13in MacBook Pro + iPad Attaché

We were a bit surprised to receive a laptop case from a company better known for its car roof boxes, but the surprise turned out to be a very pleasant one. This industrial-looking briefcase, also available in 15in, is all about function, yet its high-quality construction and considered design make it attractive in its own way too.

Made from a high-density plastic that's ruggedly rubbery without being sticky to the touch, the Attaché fastens all the way round with a waterproofed zip that seals it up tight. The makers don't promise it, but we could see this falling in a river and coming out unscathed; heavy rain certainly wouldn't trouble your kit. The strong webbing handles are padded, as is the optional shoulder strap, which is cleverly attached at diagonally opposite corners to hang without tipping.

The interior, finished in blue felt, has a fully lined section to keep an iPad safe without a case; a compartment for papers and accessories, with three pockets, a netting divider, and a gusset so that everything opens out accessibly; and a lightly padded section for your MacBook. Thanks to the clamshell format, you can use the laptop while it's in the case, although safety straps prevent it opening further than 90°, so you'll want to take the MacBook out if you have room to use the screen at a more ergonomic angle.

If you want a bag that's no fuss to use, won't easily scuff or tear, and protects your gear with a minimum of extra weight – and you're not bothered that it looks like it might possibly have been made out of a truck tyre – this is a rewardingly practical choice.

£60 inc VAT

From laptopsdirect.co.uk

Info thule.com/en/gb/products/luggage



The all-new Mamba courier
Lightweight, water-repellent natural fibre | Sizes for 15-inch MacBook Pro
& 13-inch MacBook Pro/Air

This elegant slim laptop brief is purpose-built to protect a MacBook Pro or MacBook Air, iPad, iPhone, essential accessories, as well as documents and personal items—in style. Waterproof and organically dyed, the unique properties of this material with its smooth yet rugged hand feel are extremely light and strong.



Mamba courier



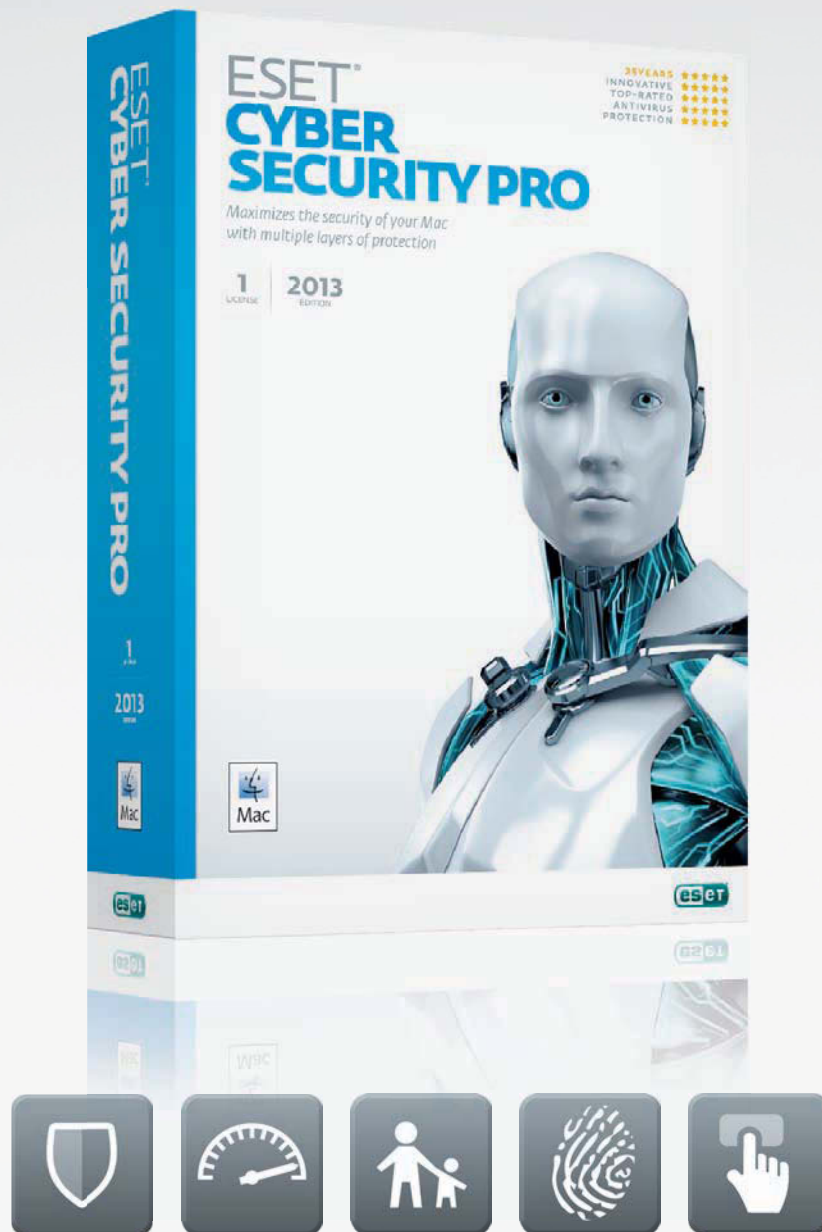
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www.booqbags.co.uk

Engineered for your Mac

ESET **CYBER SECURITY PRO**



Add Layers of Protection to Your Mac
for Security That is Truly Thought Through.



www.eset.co.uk



EDITOR'S CHOICE

Knomo **Kobe 15**

This is undoubtedly the most expensive-looking messenger bag we've encountered. Except for the strong woven PET back panel, it's finished entirely in a soft-grained tan leather that gives it the slouchy opulence of a member's club sofa. Since the Kobe wearer is hardly going to be seen fiddling with clasps, the lined front flap is held in place by two strong magnets, and lifts to reveal two generously gusseted pockets that, unlike so many of those offered by laptop bags, are of precisely the dimensions most useful for stowing awkward accessories like mains adaptors, cables and AirPorts Express.

Behind this is a full-width compartment big enough for three or four MacUsers, adorned with large elasticated pockets for further sundries; and then

comes the MacBook section, protected on both sides by Knomo's high-density foam quilting. At the rear is an extra full-width pocket, again with fabric dividers for smaller items, that closes with a central magnet to stop your newspaper slipping out. Like other Knomo bags, the Kobe is marked with a unique serial number and a helpdesk contact for finders.

The integral webbing strap is the only means of carrying the Kobe, short of tucking it under your arm, and a bit of padding on it wouldn't have gone amiss; but it's broad and we found it comfortable enough. The whole bag, in fact, exudes comfort, and if you wanted to treat yourself to something of real quality, this one really does feel like a treat.

£215 inc VAT
From knomobags.com/uk



Reviews

'Tectonic plates have shifted with less consequence, and they have the grace to do it slowly' → 22



Key Works with Mac; iPad; iPod touch or iPhone



GRAPHICS TABLET

Wacom Cintiq 13HD

The art of compromise

The Cintiq 13HD is the latest in Wacom's line of monitor/tablet combinations, and in many ways it's the most successful yet. Where the larger models have required a hefty desk mount to support them, the 13HD weighs just 1.2kg, about 10% less than a 13in MacBook Air, and rests comfortably on your lap. It also comes with an ingenious three-position desk stand that holds the device at 22, 35 or 50 degrees, or lets it lie completely flat.

Despite its small size, the screen has an impressive resolution of 1920 × 1080 pixels, significantly higher than the 13in MacBook Pro (but rather lower than the Retina version). The panel is bright and clear, with an extra-wide 178° horizontal viewing angle and a 700:1 contrast ratio. We weren't able to run a full hardware test on it before going to press, but subjectively it produces a crisp and colour-faithful image that's slightly warmer than the native MacBook display.

The Cintiq attaches to the outside world using a cable whose plug looks uncannily like Apple's old iPhone connector, and which

then splits into three strands. One goes to the power supply, and two connect to your Mac via USB and HDMI ports. You'll need to provide your own Mini DisplayPort to HDMI cable (no Mac has an HDMI port except the mini), since it isn't supplied.

The tablet registers 1,024 levels of pressure sensitivity via its single pen, but this pen comes with nine interchangeable tips, including a neat desktop stand and an elegant slimline case that holds the pen, its tips and a tip-changing tool.

In use, the tablet/screen system has many advantages. As we now all know from less specialised iOS devices, drawing directly on the screen feels far more natural than drawing on a tablet while looking at a monitor. Because the glass has a slight but noticeable thickness, the tip of the stylus is often a millimetre or so away from the drawing point, but this is helped by the on-screen cursor, a small circle that activates when the pen comes close to the surface.

Like other Wacom tablets, the Cintiq has a number of controls on its frame. →



No fear or favour

All reviews are the result of hands-on testing. MacUser does not review products based on press releases, box blurbs or advertising budgets. Our testers are everyday practitioners as well as experienced journalists. We don't tell them what to say. They just tell you what they think. Ratings and awards are at the discretion of the editors.

REVIEWS RATINGS GUIDE 🐻 Poor 🐻🐻 Flawed 🐻🐻🐻 Decent 🐻🐻🐻🐻 Recommended 🐻🐻🐻🐻🐻 Exceptional





Light fantastic
More portable than a MacBook Air, the Cintiq 13HD is a pleasure to draw on, even if key shortcuts are trickier

WACOM CINTIQ 13HD → There are four main buttons, as well as a four-way pad with an additional button in the centre. You can configure all of these, and Wacom recommends using its proprietary Radial Menu for quick access to as many functions as you need.

Setting this up is time-consuming, though. To add, say, a submenu containing frequently used filters in Photoshop, you need to assign a keystroke to each filter using Photoshop's Preferences dialog before setting up the Radial Menu in the tablet driver. This is annoying when software utilities such as Keyboard Maestro and QuicKeys can call up menu options within other apps without requiring the shortcut rigmarole first.

It's most likely that you'll assign the four main buttons to Shift, Alt, Cmd and Ctrl. But the keys are stiff and hard to press; and they're mounted on the front of the tablet, not the back, where your fingers naturally end up. So it's hard to hold two keys simultaneously, devilishly tricky to hold three, and almost impossible to hold four. It's a major drawback when working in Photoshop, where holding multiple modifier keys is essential to control the current tool.

To move a copy of a layer horizontally, for example, you'd need to hold Cmd, Alt and Shift. On the Cintiq, this is a real struggle, as you have to contort your fingers to press the upper surface. We ended up positioning a wireless keyboard next to the tablet, which solved many of our issues but seemed to be missing the point a little.

Previous Wacom tablets included an OLED display that indicated the purpose of the customisable buttons, as well as a scroll wheel or strip that registered a continuous drag, which was very useful for such tasks as changing brush size. But both of these have disappeared in the 13HD.

Despite these regrets, we loved drawing on the Cintiq. There's no lag between sketching a line and it appearing on the screen, and none of the corner jitters that plagued some earlier models. If drawing on the iPad is your point of comparison, the precise, responsive stylus creates a totally different experience. The 13HD is the best alternative yet to a traditional graphics tablet, balancing size, convenience and price better than any previous Cintiq. ■ **Steve Caplin**



Wacom Cintiq 13HD

Graphics tablet with screen

From wacom.com

Needs OS X 10.6 • Free display and USB ports • DisplayPort to HDMI adaptor

Pro Gorgeous screen •

Lightweight and compact

• Highly responsive

Con Poor button layout

• No scroll wheel or OLEDs

£750 inc VAT





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SPEAKERS

KEF X300A

Boxes that rockses

When a premium hi-fi company like KEF moves into the world of computer audio, people sit up and take notice. The new X300A speakers use its unusual lemon-squeezer-shaped Uni-Q driver, which positions the tweeter inside the woofer, so all sound comes from the same place to make the sound more realistic. And they connect only via USB.

The speakers come as a pair but are individually powered, so they can produce loads of volume and you don't have to worry about the kind of whining interference that can affect USB-powered speakers that don't have a ground connection.

The data connection is also high-quality, and uses an asynchronous USB connection. Asynchronous USB hardware has a built-in timing chip that controls how much data is being passed through, so the setup doesn't depend on the computer's clock cycle. This eliminates occasional judders and glitches that can occur in USB audio devices using cheaper adaptive data connections.

Each speaker has its own three-pin power cord, and each has different controls. The left speaker is the primary USB audio device, and connects directly to your Mac. Internally, it's equipped with a high-end DAC that supports a sample rate of up to 96kHz. We like its neutral, balanced sound.

Instead of an analogue audio cable, the X300As use a digital mini USB connection to join the left and right speakers. The left speaker also has an analogue 3.5mm jack for auxiliary input, to cater for devices like your iPad or iPod that don't have USB audio outputs.

The right-hand speaker also has a balance potentiometer, which you'll want to keep at the centre position unless your speakers are unevenly spaced. On the left is a gain pot for setting an appropriate baseline volume. It's difficult to knock the pots out of position once you're happy with them, but it's also quite difficult to adjust them if you can't easily look at the rear of the speakers.

And it can be a challenge finding somewhere to put them. Each measures a hefty 280 × 180 × 243mm including its heatsink, which made our desk feel very crowded. You could move them to a slightly elevated shelf or a pair of stands, but you'll ideally want to have them pointed towards your head at about the same level.



Quality control
Can all-digital speakers satisfy audiophiles?

As long as they're at roughly the right height, the speakers have a wide sweet spot that produces an absolutely fantastic sense of space. Even with them relatively close together and near a wall, we found the sound was incredibly immersive, seeming to come from all directions.

If you must have them near a wall, you'll probably need to limit the amount of bass produced from the rear to prevent low-frequency sounds reverberating off the surface behind. To this end, foam bungs are supplied that you can use to block the bass ports.

Did we mention the sound was fantastic? As well as enveloping your ears from a wide range of angles, the speakers have a neutral, well-balanced sound. We were particularly pleased that the emphatic and well-defined bass didn't overwhelm the mid-range. The X300As really make the most of high quality recordings, but ruthlessly expose flaws in very low bit rate audio sources, so you'll want to make sure your tracks are stored in the highest-quality format. Given this, everything from bass-heavy hardstyle to orchestral music is superbly rendered.

The KEF X300As are, without a shadow of a doubt, the best-sounding USB speakers we've ever heard. They'd be more flexible with TRS, XLR and RCA inputs; as it is, you can *only* use them with a computer or via the 3.5mm stereo input, which is OK for iPods but hardly the kind of connection that befits a £600 speaker.

Relying on USB for optimal audio quality could be a hard sell to an enthusiast market that's currently obsessed with analogue. But it's hard to fault these great-sounding boxes for Mac use. ■ **Labs team**

KEF X300A

Active USB two-way stereo speakers

From kefstore.co.uk

Pro The best USB speakers we've heard • Minimalist design

Con Horrifically expensive

BEST OF BREED**£600** inc VAT



HP LaserJet Pro 200 Color MFP M276n

Business partner

Who says you can't be all things to all people? HP's LaserJet M276n colour laser all-in-one is truly multi-talented. Not only does it offer fast A4 colour printing, but it combines this with fax, scan and copy functions, wifi connectivity, and an impressive range of cloud

printing options. It's AirPrint-ready, so you can output directly from iOS devices.

At this price for a fairly heavy-duty model, you might not expect many frills, but the M276n is a thoroughly modern printer, with a slick touchscreen for accessing options and settings and setting up HP's print apps.

For remote printing, it supports HP's ePrintCenter, so you (and others you trust) can email documents directly to the printer for instant output. Google's Cloud Print works just as well on the M276n, and both are simple to set up. But ePrintCenter also provides useful admin settings, such as controlling which users can print in colour.

You can scan documents directly to email and network shares, and scan to or print from a USB stick, and the printer's web interface makes light work of creating fax phone books or speed-dial lists. A 35-sheet automatic feeder aids scanning and copying.

In this price bracket, output quality can't be faulted: you get sharp text and high-quality colour output. Colour photos were vibrant, with no noticeable banding. Scanning was fast enough for general office use, although copying, at 6ppm, could be quicker. Print speeds were on the money, however, with all our tests delivered at 14ppm.

The LaserJet M276n is ideal for small businesses wanting a cheap and versatile colour laser all-in-one. Output quality belies its price, running costs are on a par with rivals, and the web features set it apart. **■ Labs team**

HP LaserJet Pro 200 Color MFP M276n

Laser printer for small offices

From ebuyer.com

Info hp.com/uk

Needs OS X 10.5 to 10.7

Pro Good-quality output

• Low cost • Cloud printing

Con Not a fast copier

EDITOR'S CHOICE

£278 inc VAT



Willing and able
Decent output
quality is combined
with plenty of
convenience features



Web Hosting made easy

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SEO Injectors built in to help with search rank

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EXTERNAL SSD

LaCie Porsche Design Slim SSD

Turn to slender

An iconic marque is a lot for a storage product to live up to, but this Porsche Design-branded USB 3 external SSD may be the most elegant portable drive we've ever tested. Wrapped in aluminium, the 11mm-thick case is featureless but for the geometric black Porsche Design logo in one corner, with vertices so sharp you could almost cut yourself (you might want to keep it in a separate pocket

from other kit in your bag). It's minimalist, Apple-like, yet distinctive.

The whole thing is no bigger than some smartphones, and although quite heavy for its size, at 182g, it's much lighter than an iPad mini. A small slice out of one edge houses a white activity light; the only other decorative detail is the logo, and you can flip over the drive to hide this if you prefer.

A half-metre USB A to Micro B cable, with its odd-looking but ultra-compact twin micro connector, is included in the box, and the drive, which works with all recent versions of OS X, is compatible with Time Machine. Mains power is neither required nor catered for.

LaCie quotes speeds of up to 400MB/sec, and it turns out that this sells the drive a little short in sequential read speeds. We saw peak performance of 443.6MB/sec, although the average was 367.3MB/sec. If you discount the three smallest file transfers in our tests – those up to 16K – the average rises to 405.6MB/sec. In random read tests, requesting data scattered across the drive rather than

in order, peak performance of 369.4MB/sec was also good, with a more modest average of 171.6MB/sec.

Write tests challenged the drive a little more. Here, sequential performance peaked at 202.6MB/sec and averaged 174.1MB/sec; random writes peaked at a healthy 200.4MB/sec, but the average slipped to 123.1MB/sec. Those results are still very respectable compared with portable hard drives. The LaCie's average speed in the toughest test was a sliver ahead of what we've seen from a good 2.5in hard drive on the easiest test. And that drive slowed to one fifth of the speed of this SSD in random writes.

That and its price makes it a convenient and relatively affordable way to back up an SSD-based MacBook without slowing things down, or to copy things from less portable fast storage to take with you in a hurry.

Bear in mind that reading or writing will only go as fast as the drive you're copying from or to permits; and that you're not getting huge capacity for your money. If you don't need the speed of solid-state, LaCie also has a choice of hard disks in the same case design. ■

Alan Stonebridge

LaCie Porsche Design Slim SSD P'9223 120GB

Portable USB 3 solid-state drive

From lacie.com/uk

Needs Intel Mac • OS X 10.5 or later

Pro Small • Light • Elegant • Excellent read speed

Con Write speeds aren't stunning, although still well ahead of hard drives

EDITOR'S CHOICE

£135 inc VAT



IOS AUDIO SPLITTER

Urbanears Slussen

Is that a party in your pocket?

As its price suggests, the Urbanears Slussen is by no means an example of top-end professional DJing equipment. Its target audience is the aspiring party DJ who owns an iPhone or an iPod, a stereo system and not much else.

Urbanears describes the Slussen combination of hardware and software as 'the most powerful after-party weapon known to man', and while this claim may be a slight exaggeration, or indeed simply nonsense, on first inspection the product does seem

rather cool. The hardware is essentially a stylishly designed headphone splitter – it comes in Petrol, Grape and Tomato colourways, as well as Pumpkin, shown here – which, coupled with the free Slussen app from the App Store, actually sends different audio to each of its two outputs, enabling you to cue up tracks playing on your iOS device using headphones without interrupting the music playing from the same device through your speakers.

The app looks great, and while it isn't as feature rich as the likes of Traktor DJ, it does cover the basic functions you would hope for in a product of this type.

This would all be grand, except that when you actually try it, it isn't. One of the app's most important features is its ability to analyse tracks to determine their tempo. This enables you to sync two tracks so that their beats match up, which is always nice. But it took a very, very long time in some instances, which could make for embarrassing gaps in playback.

The app also seems to pick and choose which tracks it analyses and which it doesn't. This is frustrating, and detracts considerably from the Slussen's overall appeal. On top of this, we found that when cueing up a new track, it would sometimes start halfway through rather than at the beginning. Awkward.

Slussen is a great concept despite its flaws, and could be great with a few tweaks. Until the issues are dealt with, it can't be viewed as a credible party DJ solution, but for 13 quid it's still a fun way to play with music on your iPhone or iPod. ■ **Felix Martin**

Urbanears Slussen

Headphone splitter and iOS app

From amazon.co.uk

Info urbanears.com

Pro Neat gadget • Great-looking app • Reasonably priced

Con Too many annoying bugs in the software

£13 inc VAT



If a fob's worth doing ...

According to Urbanears, Slussen is 'the most powerful after-party weapon known to man'. We would like to punch Urbanears

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COMPACT CAMERA

Fujifilm XF1

Pocketable panache

With its classic combination of brushed aluminium and synthetic leather, the XF1's range-finder design is undeniably stylish, and there's a choice of red or black if the tan finish doesn't light your fire. The lens barely protrudes from the body when it's switched off, giving a 33mm overall depth that slips easily into a pocket.

A small twist unlocks the lens, whereupon it's pulled outwards and then twisted again to power up and adjust the zoom. This three-part action quickly becomes second nature – we measured just 1.8 seconds to release the lens, switch on and take a photo – and the manual mechanism reinforces the XF1's retro appeal.

The back of the camera looks more modern, with a 3in screen and the usual array of buttons. Having both a command dial and a rear wheel enables you make quick adjustments, although most of the time they duplicate each other's functions. One exception is in manual exposure mode, where they're assigned to shutter speed and aperture. Pressing the command dial swaps them, which we found disorienting. The two controls work well together when adjusting the autofocus point, with the wheel moving the point and the dial adjusting its size.

PREVIOUS FUJIFILM CAMERAS employed a two-tier menu system that we never really warmed to. This has now mercifully disappeared. Instead, pressing the E-Fn button reveals alternative roles for six other buttons on the back of the camera. These can be customised, and an on-screen prompt makes it easy to see what's assigned to each button. It's an enormous improvement on the old list-based quick menu. With an-

other customisable button on the top of the camera, accessing the XF1's settings is generally very quick.

However, there's a caveat we've encountered many times before with Fujifilm cameras: most buttons are unresponsive while the camera is saving photos to its memory card. This isn't too much of an issue in normal use, although we had to wait two seconds after taking a photo before we could adjust a setting. It doesn't affect the ability to take another photo, either, with just 1.1 seconds between shots.

But it's more frustrating in continuous mode or when shooting raw, where it took up to six seconds to regain full control of the camera. Continuous mode performed reasonably well, shooting at 6.7fps for six frames before slowing to 1.8fps. There's no

It has the same sensor as the X10, so image noise is among the lowest of any compact camera

option here to update the autofocus between shots, though.

The best performance comes when the resolution is set to 6 megapixels, giving 9.7fps shooting for 14 frames, slowing to 3.3fps. The XF1 uses Fujifilm's excellent EXR technology, so switching to 6 megapixels also reaps big benefits for noise and dynamic range. It helps that this $\frac{2}{3}$ in sensor is almost twice the size (by surface area) as the $\frac{1}{2.3}$ in sensors used in most compact cameras. It's also a little bigger than the $\frac{1}{1.7}$ in sensors used in other brands of premium compact camera. It appears to be the same sensor as in the one inside the Fujifilm X10, which means that noise levels are among the lowest of any compact camera.

When there's plenty of light and not too much contrast in a scene, the camera will switch to 12 megapixels. This revealed crisp focus from the lens, but details weren't quite as sharp as we'd hope for from a 12-megapixel camera; the EXR sensor's unusual pixel array seems likely to be to blame. Still, the 6-megapixel mode gives more than enough detail for most

purposes, and 12-megapixel photos capture a little more detail for when enlargements or heavy cropping is on the cards.

Another big boost to low-light photography comes from the large-aperture lens. At f/1.8 for wide shots, it gathers four times as much light as a typical f/3.5. This helps to keep the ISO speed down, reducing noise still further, and enabled us to capture some incredibly clean photos at night.

The lens closes down to f/4.9 at the other end of its 4× zoom range, so low-light photography suffers when you zoom in. The X10, by comparison, maintains a wide aperture throughout its zoom range, giving it the advantage for low-light shooting.

NOISE REDUCTION is generally well judged, but takes its toll on fine details, and can look a little syrupy on skin textures. The EXR Auto mode gave reliable results, but we found that in program and priority modes, it was worth disabling dynamic range optimisation – or at least managing it carefully – to avoid smeared skin textures even in brightly lit conditions.

Video capture wasn't the XF1's strong point. Its 1080p clips looked great at first glance, but any sharp diagonal lines in a scene came out blocky – a tell-tale sign of poor anti-aliasing, which also diminished detail levels and could make motion look a little odd. The lens ring allows for slow manual zoom adjustments, but we found autofocus to be a little skittish, while optical stabilisation appeared to be disabled while recording. It's fine for casual clips.

The X10 is an excellent alternative to the XF1, and currently available for around £296 from amazon.co.uk, making it only a few pounds more expensive. It has better controls, an optical viewfinder, and a brighter aperture at the long end of the zoom.

Then there's the forthcoming Fujifilm X20, with the promise of sharper detail, and the Panasonic LX7, with its superior videos, faster performance and even brighter lens. But we'd be tempted to trade all these advantages for the XF1's slimmer design and integrated lens cap, which makes it much easier to slip in and out of a pocket.

With its reasonable price and incredibly gorgeous design, the Fujifilm XF1 is at least as good as the LX7. If you love the way it looks, the way it shoots is unlikely to disappoint you. ■

Labs team

Fujifilm XF1

12-megapixel compact with 4× zoom

From amazon.co.uk

Info fujifilm.com

Pro Stunning design •

Impressive image quality •

Truly pocketable

Con Not good for video

EDITOR'S CHOICE

£269 inc VAT





IOS APP

Quark DesignPad 1.5

Watch this space

Whether or not it's your current layout app of choice – and don't we all flip-flop every few years? – QuarkXPress on your iPad, for free, is a pretty seductive offer. The catch is that its best features are locked away in an in-app purchase, and even then it lacks some key tools. But still – Quark! On the iPad!

At first glance, the app seems like a neat alternative to Pages for casual DTP projects. It comes loaded with 11 templates for flyers, business cards, letters and so on, or you can pick a paper size and start from scratch. Everything's tweaked using sliders, which control the height of a headline, the size of a font, the roundness of corners and so on.

Granularity is where this simple approach falls down. You can't set part of the text in a frame in one font and the rest in another, or bold up a single word. In fact, you don't even enter text in the frames you create for it, but in a screen-wide dialog box. Nor can you link frames so that text flows between them, but then you'd have little reason to, since you can't create multi-page documents.

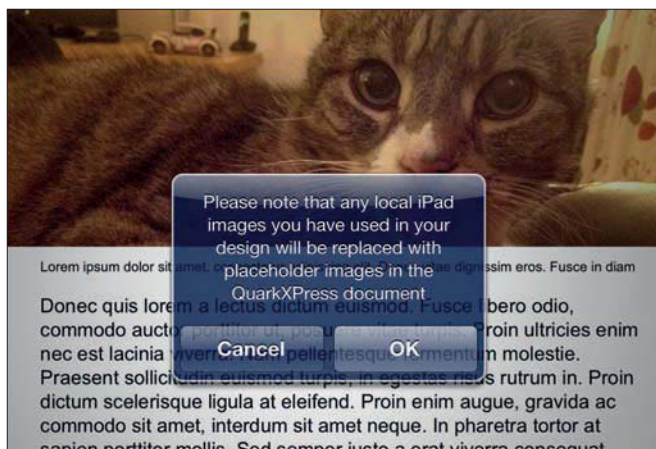
The logic, presumably, is that you'd later tighten up and finish off the design on your Mac. And you can do exactly that by moving the document to QuarkXPress. This is a one-way operation, though: it's not possible to send the file back to DesignPad for further work, or to open Mac-originated XPress files in DesignPad. So it's not a way to escape the office early and get some proofing or cutting to fit done on the train home.

There's not much else you can do with your DesignPad layout, either, except to save



↑ Slip sliding away
DesignPad's controls are powerful and well thought-out, and very effectively port heavyweight design options to the iPad's tap-and-drag interface

→ Strip tease
If you use your own images in a layout, they'll be stripped out when you email the file out of your iPad



a bitmapped image of it as a PNG or to your iPad's Camera Roll. There are PDF, Dropbox and AirPrint buttons too, but tapping any of them just pops up a polite demand for £6.99. If those were all the features we got for our money we'd consider it daylight robbery by iOS standards, but the in-app purchase also unlocks dynamic grids, for changing layouts in live documents, and enables wave shapes that let you create bulging and swirling text frames. If those sound useful, it could be a worthwhile investment.

Whether or not you pay, there's a bundled library of stock photos covering topics such as holidays, background textures, animals and so on. They're more generic, and thus useful, than the categories suggest ('insurance'?), and of a high quality, so they're quite handy to have. Clearly, Quark wants us to use DesignPad to knock up a template while sitting with a client, for example, then take it back and do the real work in QuarkXPress.

When you do so, if you've had the temerity to use any of your own images in the layout, they'll be stripped out; only the default pictures will survive the transfer intact. This may simply be a way of avoiding

You could use this to knock up a template while sitting with a client, then take it back to QuarkXPress

the issues of resolution and colour space that would arise with feral images, but the ability to embed a placeholder, even at low quality, would be a useful aide-memoire.

We waited for version 1.5 to review DesignPad, so it's not a mere proof of concept, and in fact there are several new features since the original release – but it still doesn't feel like an app with real-world uses. As an adjunct to QuarkXPress on the Mac, it could be genuinely useful, and a selling point over InDesign, but it just doesn't do enough. Nor is it of much help to general iOS users looking for a simple DTP app. Going the final mile to make this the first real (if simple) page layout app for the iPad and a bonus for QuarkXPress users would surely pay dividends. ■ **Nik Rawlinson**

Quark DesignPad 1.5

Desktop publishing app for iPad

From App Store • £6.99 in-app purchase for additional features

Info quark.com

Needs iPad running iOS 4.3 or later

Pro Can export to QuarkXPress • Powerful templating controls • Easy to use

Con Pages is far more flexible, costs the same (with IAP) and also works on the iPhone • No text flow • No multi-page files • No QuarkXPress import

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Original

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PDFpenPro 6

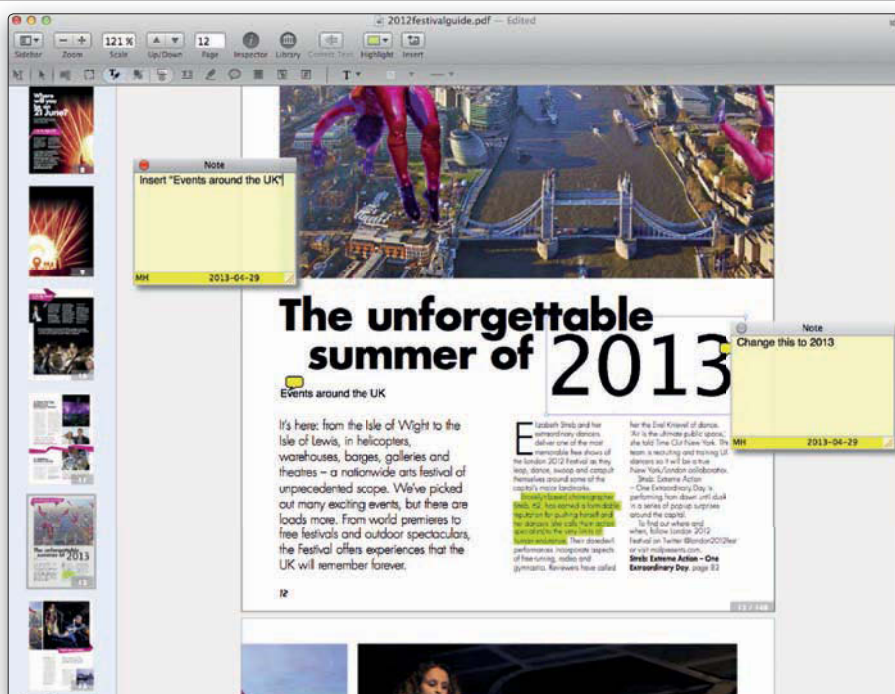
Find your form

At a fraction of the price of Adobe's Acrobat app, PDFpenPro had a lot going for it, but this new version of the PDF annotator, editor and organiser app offers serious competition in functionality too. OS X's Preview lets you view PDF documents, shuffle their pages and add basic information, but it's very limited compared to Acrobat XI Pro, which – unless you get it with Creative Cloud – is overkill at £449.

PDFpenPro 6 is a great solution that sits between the two. It offers comprehensive PDF editing and adjusting tools, and enables you to create your own PDF forms. When we last looked at PDFpenPro, we noted two weaknesses compared to Acrobat: a lack of export options and an inability to set permissions to restrict editing or copying. Both have been addressed in this release.

There are many other improvements. The new interface places editing buttons on the toolbar, so you don't have to click through the menus to get to them. It adds automatic form recognition and you can convert PDFs to Word documents.

As with Preview, you can highlight text, add text boxes and basic graphics. There's also a library that includes standard proof-reading symbols, and you can add items to this: we added a scan of a signature, stripped its background with a transparency tool and saved it to the library in a few seconds. The Correct Text function lets you select text in a PDF and edit it, and in this PDFpenPro measures up well against Acrobat. It generally did a fair job of matching the original typographic appearance of the text, which can't be taken for granted in PDF editing.

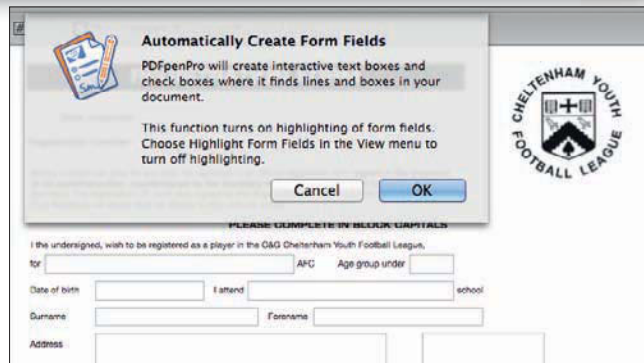


↑ Proof works

The Correct Text function enables you to edit and adjust text copy inside a PDF document. The program will attempt to match the font and weight with variable success, but it's great for fixing problems

→ On form

You can scan through a document and automatically create form fields. Add text, check boxes, radio buttons and a submit form field



Just occasionally, but often enough to be annoying, a glitch prevented us selecting text.

You can perform find and replace operations on text, and a Redact tool lets you block out or delete words. If the PDF's text isn't an editable text layer at all, typically because it's been scanned, built-in optical character recognition can convert it. Results can be hit-and-miss, but it's useful in a pinch.

Cleverly, PDFpenPro 6 can detect data entry points in flat documents, such as underlines and text boxes, which is incredibly handy for filling out forms that haven't been originated as proper interactive PDFs. You can manually add and adjust these forms, and add a Submit button that links the form and the information to your email address if you want others to fill them in.

PDFs can now be converted to Word format, as long as you have an internet connection so that Smile's server can do the work behind the scenes. It's hard to overstate how well this works, impressively retaining layouts even with columns and tables. When we tried it on a PDF newsletter exported from Apple's Pages,

PDFpenPro doesn't just compete on price with Adobe Acrobat, but now challenges it on functionality too

the original layout was preserved more accurately than when we exported directly from Pages to Word. Acrobat can't beat this.

A simple dialog box lets you set granular editing permissions, for example to allow annotations but not editing. Syncing between Macs and with the iOS version is supported via both iCloud (though only in the version bought from the Mac App Store) and Dropbox. You can also send edited PDFs straight to Evernote.

PDFpenPro lacks Acrobat Pro's collaboration and print production tools and PDF file compression, but if you don't need those it's essentially just as good, and easier to use. The basic PDFpen 6 is even cheaper at £39.95, omitting HTML import and the form creation tools. ■

Labs team

PDFpenPro 6

PDF editing and creation app

From Mac App Store (also available for iPad at £6.99 and iPhone at £2.99)

Info smilesoftware.com

Needs OS X 10.7 or later

Pro Text correction • Auto form field detection • PDF to Word conversion and solid editing tools • Good cloud integration
Con Not suitable for prepress tasks

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↑ **Grand designs** The basic view allows you to choose your instrument from a scrolling selection of beautiful pianos



iGrand Piano

Strikes a chord

You can play this multi-instrument piano app directly on its iPad touchscreen keyboard, but that really isn't what it's designed for; as a serious software instrument, it's intended for use with a MIDI input device or with IK Multimedia's own little iRig Keyboard.

It comes with seven different sampled pianos, including a standard grand, a classical grand, a jazz grand, a rock grand and another that plays in octaves. There are also three uprights to choose from, as well as a fourth (the jazz upright) that's made available when you register. A further selection

of baby grands and a few more uprights can be bought with an in-app purchase of £2.99.

All of these are genuine samples, rather than synthesised – real pianos have been captured to produce each sound, with multiple pitches recorded for the different timbres piano strings produce as you move up the keyboard.

The pianos are certainly gorgeous to play. The sound is noticeably different on each instrument, with a wide dynamic range that responds particularly well to the iRig Keyboard. Our only problem was that although they all responded well to a delicate touch, hitting the keys hard didn't produce the sort of percussive dissonance you'd get from hammering a real piano: the volume gets louder, but there's none of the sharp attack that characterises the real thing.

The app looks as good as it sounds. Scroll through the pianos on offer and choose the one you want to play. Tap the Settings button and a panel above the keyboard slides back to reveal a row of seven rotary knobs. Well, we say they're rotary, but although the dials go round, they're actually controlled by dragging up and down, which can be con-

fusing until you get the hang of it. These control the volume, 'ambience' (by which they mean reverb) and brightness, with additional controls to transpose in half tone steps, tune the instrument in finer steps, and set the velocity of the hammer release.

There's also a novel control to close and open the lid, which produces a more or less muffled sound. As you drag the knob, a representation of the lid slides back and forth, revealing the frame, strings and dampers

IK Multimedia iGrand Piano

Multi-piano app for the iPad

From App Store

Info ikmultimedia.com

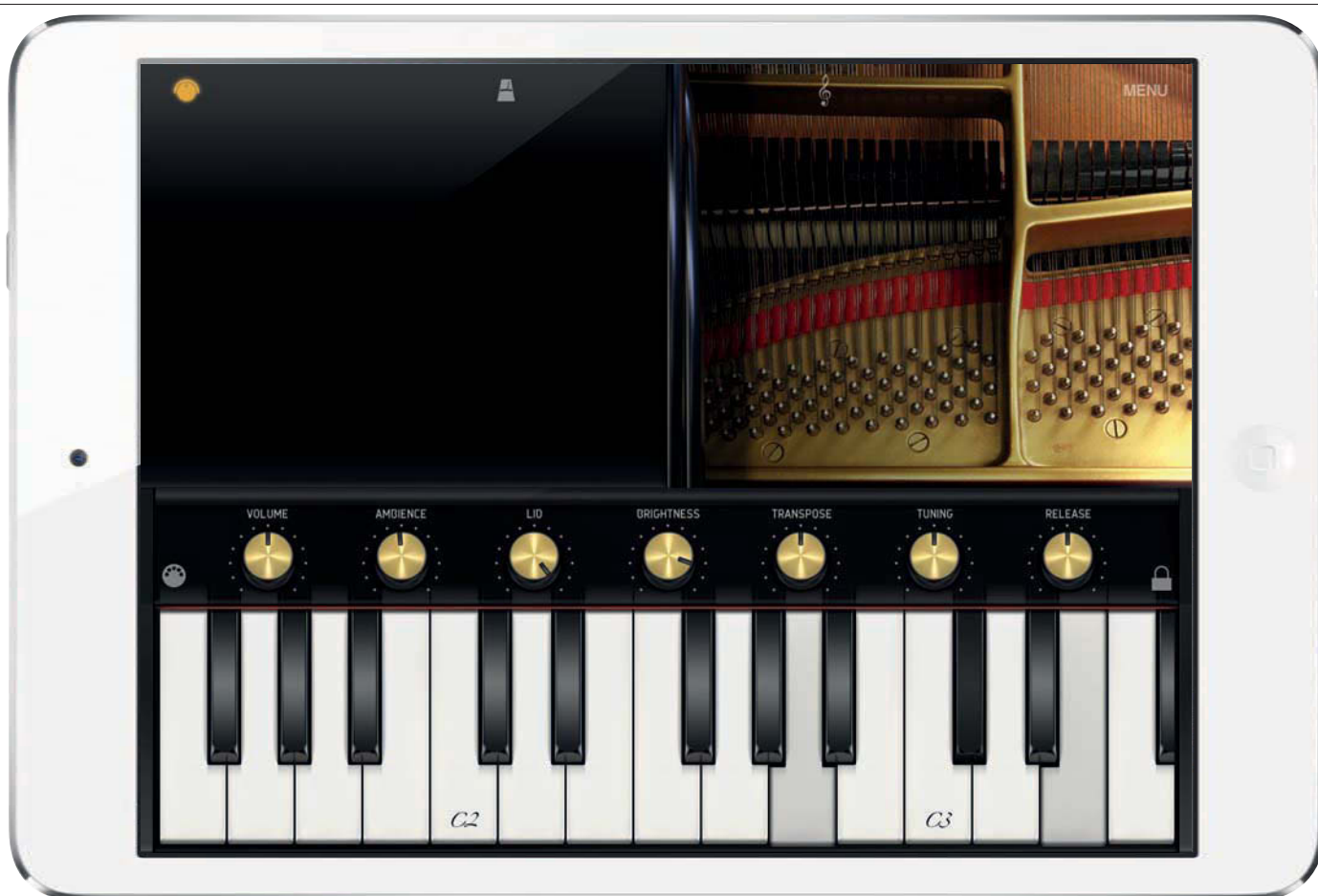
Needs Any iPad • iOS 5.1

Pro Good range of authentic-sounding instruments • Beautiful interface

Con Lacks the sound modelling to mimic hard playing convincingly

£6.99 inc VAT

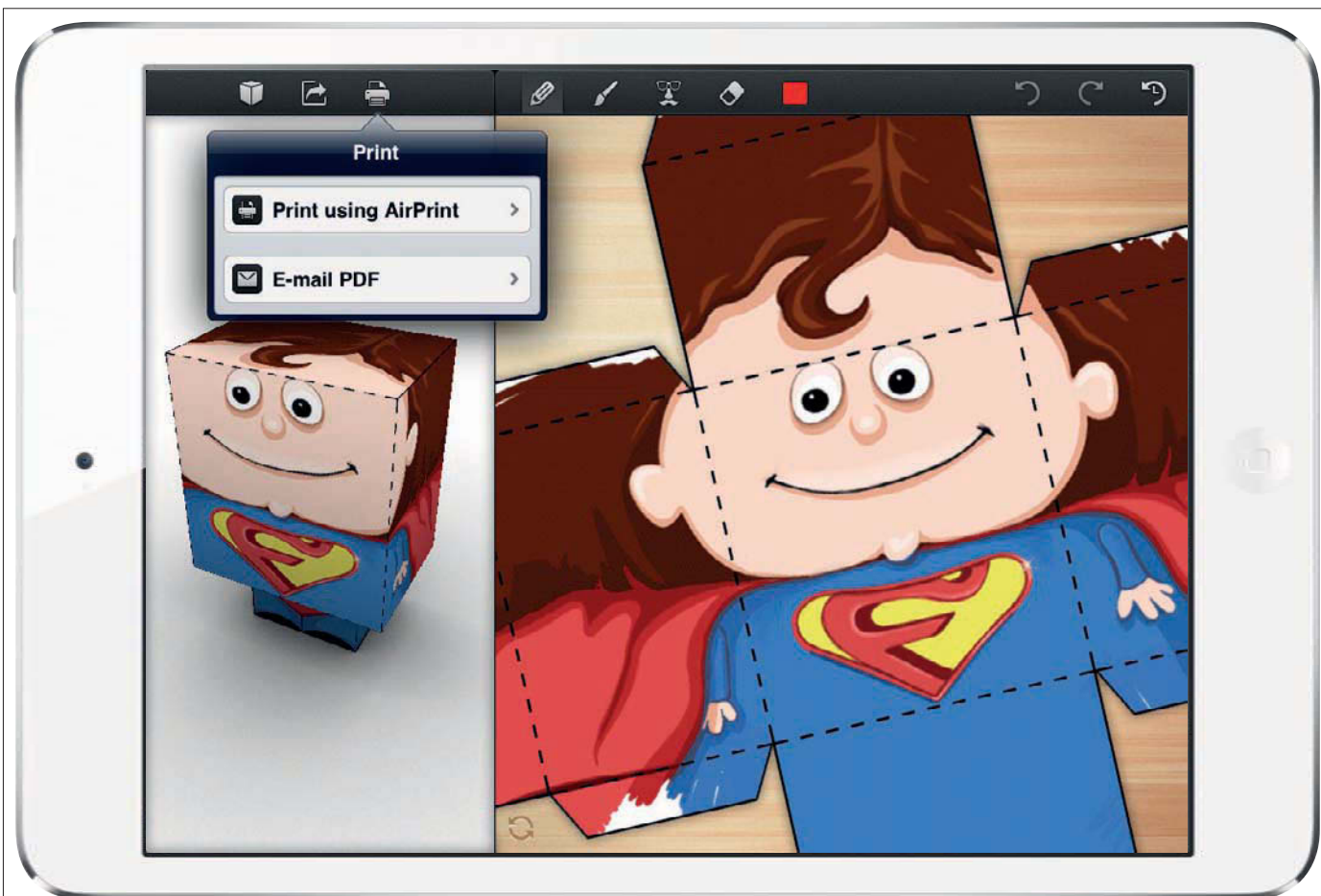




↑ **Open and shut case** You can slide open the lid of your virtual piano for a fuller, richer sound

↵ **In miniature** The player/recorder shows the whole keyboard, though you'd need nimble fingers to play it





↑ **Super models** You can export your model as a PDF or send it directly to an AirPrint-compatible printer in one of three sizes



Foldify

Creased lightning

Kids love iPads, and kids love scissors and glue, so what could be better than mixing all three to encourage creative learning? Foldify does just that, and as well as being a lot of fun – for adults as much as kids – it teaches the concept of nets.

These flattened plans typically fold into regular shapes such as cubes and pyramids, but in Foldify the nets are rather more adventurous. There are ten to choose from, including cars, buses, people, houses and trees. You can start with a decorated model, but it's more fun to pick a blank canvas and design its surface from scratch.

The built-in editing tools are rudimentary, running to only a paintbrush and pencil,

but you can also import photos (or, by the same means, artwork created elsewhere), and there's a generous library of ready-made features: eyes and arms, windows and doors and so on. It's easy to knock up a boxy Lightning McQueen with eyes and a mouth alongside its windscreen and wheels.

There are multiple levels of undo, and you can layer the elements, too, so glasses can sit on top of eyes, or you can add a moustache to your own mugshot. Each of

the elements can be scaled and rotated, and the 3D preview of your folded model spins around as you drag it so you can see from any side how your finished product will look.

When you're happy with the result, you can share it on Facebook or Twitter as well as printing it in one of three sizes on any AirPrint-compatible printer. This allows sufficient flexibility for savvy kids to quickly knock up paper buildings for a model railway, or to line the edge of a Scalextric track. If you don't have an AirPrint device, you can send yourself a PDF to print from your Mac.

Saved creations are stored on the Foldify home screen, from which you can also browse and download other users' shared models and buy additional pre-built components, such as a seasonal Christmas pack. That pack is free, but other sets of additional elements cost 69p a pop.

Foldify is quickly addictive, and while its long-term appeal will be stronger for kids than their parents, a couple of quid is a small price to pay for teaching them something about geometry in a memorable way. Or, indeed, for making a paper model of Grandma. ▀

Nik Rawlinson

Foldify

Model making app for iOS

From App Store

Info foldifyapp.com

Needs iPad 2 or later • iOS 5 or later

Pro Enormous fun • Practical demonstration of nets • Easy to use

Con Still fun if you don't have kids, but long-term appeal may be limited

EDITOR'S CHOICE

£1.99 inc VAT



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Whipped Cream? £0.40

Muffin £1.85

Flapjack £1.75

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Extra power? - 16GB Ram £0.35

Fusion storage? £0.25

iPad mini £0.35

Time Capsule £0.30



We all love our coffee but for the cost of that cappuccino a day you could get the new latest thin iMac. And for the cost of that extra 'shot' you could afford to add an iPad mini!





Boxshot 4

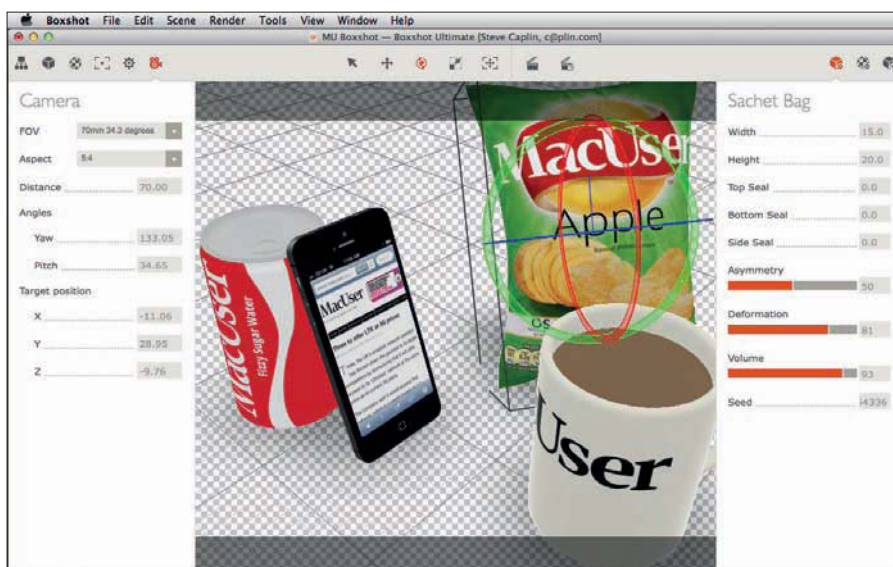
Make a packet

Boxshot is an innovative application for creating product mockups. No knowledge of 3D modelling is required, and the application contains all you need in order to pose, adjust and render its built-in set of models.

It comes with more than 50 object models, including bags, books, magazines, cans, DVD and CD cases, and cups and mugs. Some are provided with more than one view, so a book or magazine can be viewed either open or closed, any way up. There's also a useful range of contemporary technology, and it's interesting to see the developer's personal choices here: there's an iPad, an iMac, an iPhone 4 and even an iPhone 5, but not an Android tablet or, indeed, any other brand of mobile phone or computer in sight.

You place your own images onto these objects by dragging and dropping them from the Finder. It's useful to know this in advance, as we initially had a fruitless search for an Import command, and only found this out through a request for a different method on the Boxshot website. Images drop into predetermined places on the models, and you have the option of placing them either as a texture (for labels and so on) or as a reflection, a bump map or a reflection mask. You can also drag and drop not just JPEG and PNG images, but PSD files as well, complete with transparency.

Some of the objects have customisation options – when using bags, you have access to varying degrees of fullness and distortion. You can set the width and height of a book, and whether it's open at the beginning, middle or end; you can also turn the dust



↑ All together now

Multiple objects can be combined in a single scene, with customisation options for most designs

→ Wait for it...

Rendering a complete scene can take a long time, but the results are generally worth it



jacket on or off, or replace it with your own. There's even a Fit to Images button, which adjusts the shape of the object to match the proportions of the mapped artwork.

Multiple objects can be combined within a scene, and they can reflect each other; positioning them is straightforward, although a lack of collision detection means they can easily merge through each other.

To manipulate an object, you choose the tool – scale, rotate or move – and drag the handles. Dragging anywhere outside the object will rotate the background, which isn't always welcome: there's no way of locking it in place, which can cause problems when working with an existing scene whose perspective you want to match.

Another oddity is the way the background manipulation tool works. The whole scene is moved using the Camera Center tool, which looks just like the Object Move tool, but behaves in the opposite way. Three axis arrows appear in the centre of the screen, and dragging any one moves the indicator and not the scene; releasing it causes the scene to be shifted so the indicator

Fit to Images adjusts the shape of the object to match the proportions of the mapped artwork

is once again right in the centre, which is very counterintuitive.

You can control the reflection and, to some extent, the surface behaviour of objects in the scene. You can render to any size, or perform a test render for speed. It's always worth doing this first, as the render process can take an hour or more.

You can copy finished renders to the Clipboard or save them as image files with transparency, and the scenes themselves can be exported in a variety of formats – 3D PDF, as well as U3D, Collada DAE and others.

The images Boxshot produces aren't exceptionally realistic, but they form an advanced starting point. For product mockups and box shots, it's the most straightforward solution yet. ■

Steve Caplin

Boxshot 4

Product mockup software for the Mac

From boxshot.com • Price shown for Home edition (sold in US dollars at \$49)

• Professional edition £118 (\$179)

• Ultimate edition £131 (\$199)

Needs OS X 10.6 and later

Pro Good range of built-in models • Mainly

intuitive interface • Easy

to use

Con Slow rendering

£32.37 inc VAT

★★★★★





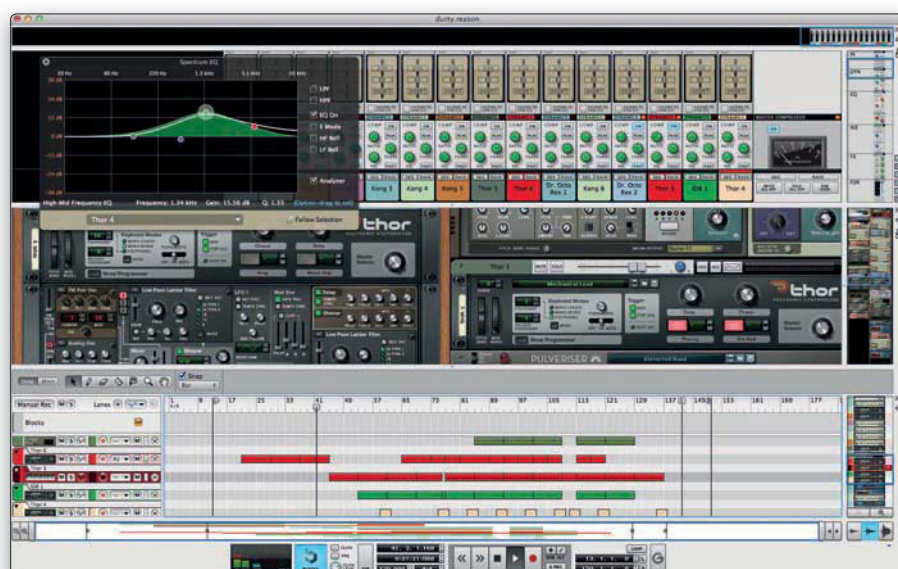
Reason 7

Rack 'em up

When Reason burst onto the music technology scene over a decade ago, it caused genuine excitement: a music-making application that shunned plug-ins and audio recording in favour of an in-house approach with an almost infinite virtual 'rack' into which you could load instruments and effects. And although it's gained countless features since then, version 7 is still recognisable as an evolution of that original program.

In version 6, Reason gained audio recording capabilities. In version 6.5, Propellerhead introduced Rack Extensions, which are instruments and effects developed by third parties that can be tried or purchased easily and live inside the rack, greatly expanding the range of tools on offer while also letting the Props themselves get on with the business of working on the core program. And so it is that you still get all the great bundled content: an excellent range of synths, loop players, sample-based instruments and effects, and sound banks stuffed full of great patches and loops. Propellerhead has pulled off the tricky task of adding more and more features while retaining Reason's ease of use and stability.

Reason 7 doesn't look wildly different to its immediate predecessor, but there's some new stuff that's genuinely helpful. First up is automatic audio slicing in the sequencer, which means any audio you record or import is analysed and sliced up with transient markers. These can then be manipulated,



↑ **One-stop shop**
Reason combines MIDI, audio, instruments, effects and mixing into a single window, which is easier to deal with than you may think

← **Channel crossing**
The mixer now has grouping, bus and parallel channel capability, which makes dealing with complex mixes simpler

letting you change the timing and feel of audio parts easily, or quantise audio. Reason's onboard audio editing functions have been a little lacking and while they still don't approach the depth of Logic or Cubase, slicing is a welcome addition. You can even turn clips into REX loops, a handy format for storing or sharing samples.

Next up is a new External MIDI Instrument module that enables Reason to control external hardware such as synths, drum machines and workstations. This is simple to set up and use, and its slick sequencer and generators such as the arpeggiator are well suited to programming real as well as virtual instruments. Full automation is available, and by routing your hardware instruments back in, you can seamlessly integrate your studio kit into your Reason rig.

The mixer gains important new functionality, too. You can now group channels together and create buses in the mixer, allowing you to sub-mix with much greater flexibility. There's also the addition of parallel channels, which can be used for more creative mixing, especially for

Automatic slicing means audio gets markers added so you can change the timing or quantise

getting the 'New York' style of production. Other improvements include a floating EQ window and a new module called the Automatic Retro Transformer, which is great for warming up or dirtying up sounds and tracks.

For those with more modest needs, Reason Essentials 2 has many of the key features for a significantly reduced price of €120 (about £103).

Reason may not have the full pro feature set of some other DAWs, but it's more than capable of letting you produce excellent-sounding tracks in more or less any genre. Crucially, its clever design and friendly layout mean it's easy to pick up, but it also has enough depth for those who want to get more creative with the way they program, edit, record and mix music. ■ **Labs team**

Propellerhead Reason 7

Digital audio workstation

From propellerheads.se

Needs Intel or AMD processor with dual cores • 4GB RAM • OS X 10.7 or later

Pro Exceptionally stable and efficient
• Infinite rack of instruments and effects
• Great bundled content • Expansible via Rack Extensions • Full audio tracking and now slicing, too • Controls external MIDI gear • Mixer is more 'pro' and flexible
• Fun and intuitive to use

Con No really show-stopping new features over version 6.5

£344 inc VAT





Safe passage

The tactical map lets you adjust the convoy's route to suit its strengths and to avoid heavy fortifications

On a mission

Getting the commander into position to deploy power-ups is vital to the convoy's survival



MAC GAME

Anomaly 2

Post-apocalyptic dystopias never looked so good

A race of alien machines has devastated Earth, and what's left of the human race scavenges for the resources to survive and fight to eradicate the invaders. You're the commander of a convoy designated Yukon, which has learned the location of a scientist with a weapon that might be able to comprehensively eradicate the mechanised monsters.

Apparently the principles of guerrilla warfare were lost along with civilisation, because here your modus operandi is driving down straight roads lined with enemy towers. You direct the convoy over a series of missions to retrieve and deploy the ultimate weapon. It's done from the tactical map, where you decide which way the convoy

turns at each junction. Enemy positions and types are marked, although there are surprises to throw your strategy into disarray.

Each map has a primary objective, which is typically to reach an exit route or to retrieve key personnel, but the quickest route is often too dangerous. Optional quests put you further in harm's way, but reward you with new units and carosaurum, a mineral that's the game's currency to buy and instantly deploy new units.

The previous Anomaly games – Warzone Earth and Korea – are available for iOS, where you tap the touchscreen to directly deploy special weapons, including decoys and electromagnetic pulses. On the Mac, the mouse pointer takes on some of these

Anomaly 2

Real-time strategy game for the Mac

From store.steampowered.com • £19.99 for a giftable two-pack

Needs OS X 10.6 or later • 2.4GHz Intel Core 2 Duo • 2GB RAM • See website for supported GPUs

Pro Challenging • Painterly game environments look great • Multiplayer mode brings more replayability

Con Mistakes on later levels can mean retreading lots of old ground, creating frustration

£11.99 inc VAT





duties, but the actions are carried out by a commander on the battlefield, who moves independently of the convoy. Right-click and the action freezes for you to choose a power-up from a radial menu, then the commander runs to that spot and places the weapon. It's easy to get the commander snagged on scenery when moving him with the keyboard, whereas left-clicking with the pointer automatically plots a path. His inclusion complicates the Mac version, but not to the point of ruin.

Power-ups have a limited duration, so timing is vital, as is positioning. Decoys must be placed far enough from the convoy's path to avoid it getting caught in an enemy attack's blast radius, but reaching such a spot puts the commander at risk. When incapacitated, he spends three seconds on the ground unable to offer further assistance to the squad. That's long enough for your squad to be decimated, since you can't drop an energy-boosting power-up.

Losing units can be catastrophic. Restarting from the last checkpoint lets you adjust tactics by plotting a different route, rearranging your units and transforming those with a second form to see if their alternative weapons are more appropriate. But sometimes it becomes obvious much later that you can't succeed, leaving you no choice but to roll back to a mission's start.

A choice of four difficulty levels in the campaign offers lots of challenge, and medals for ruthlessness, efficiency and swiftness awarded after each mission offer some reason to replay. After completing the campaign, the multiplayer mode offers more reason to return. One person controls the convoy, while another has to think up new strategies by managing alien tower deployment.

Anomaly 2's presentation is excellent throughout, thanks to stylish illustrations and pre-mission logs, cheesy but effective spoken dialogue, and evocative environments. These last present a small problem in that the game uses the regular OS X pointer, which often gets lost among the scenery in levels. Increasing the pointer size in OS X's Accessibility settings (System Preferences > Display) can do a lot to alleviate this.

In all, Anomaly 2 is a tough and time-consuming take on the tower defence genre, but less welcoming than the previous iOS instalments. ■

Alan Stonebridge



Star Command

It's worse than that, Jim

Star Command has a Kickstarter backstory that's ultimately much more interesting than the game itself. This is one reason why it's had such a high-profile launch – and critical mauling.

Based on a loose pastiche of the Star Trek universe, the game offers a mix of construction and management interspersed with real-time strategy battles that also contain time-based mini-game weapons combat.

It features cute pixellated artwork with tiny Star Trek-esque characters. The ship is rendered in isometric 3D, and the cut scenes have a suitable retro blockiness. Although your choices don't seem to matter, plot interactions are light-hearted. But don't expect to laugh – it's not that good.

The construction and management and mini-game battles are all fine (if basic), but the combat is, frankly, terrible. Controlling your crew is incredibly fiddly, and everything quickly gets out of control.

On paper, Star Commander has a lot going for it. Which is presumably why the project was so popular on Kickstarter. It had two rounds of funding for a total of \$188,773, yet a lot of the promised features are missing. There's no diplomacy, no research, and you don't get to explore areas other than your ship. This must be the only Star Trek game

ever designed where your characters can't beam down to an alien planet.

It's a warning to game developers that crowdfunders might be even less forgiving of your inability to deliver on promises than a traditional publisher. All projects have a development process, and ideas are bounced around and sometimes out. With Kickstarter, you're doing that in public.

If the end product was great, it wouldn't matter. But the fact that there's a handy guide on Kickstarter to everything that could make it better doesn't help its case. Both Star Trek fans and iOS gamers deserve better than this. ■

Mark Hattersley

Star Command

Construction and strategy game for iOS

From App Store

Info starcommandgame.com

Needs iPad, iPhone 3GS or later or third-generation iPod touch or later

Pro Cute style • Fun Trek pastiche theme

Con Not enough detail

• Fiddly combat

£1.99 inc VAT



↑ **Confused?** You will be: despite the low-res simplicity, the real-time battles are a complicated nightmare

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THE APPLE BUYER'S GUIDE

**Mac and iOS: your options now,
when to expect new models*,
and what specs to watch out for**

*Apple doesn't publish or comment on product launch schedules. 'Expected' dates are best guesses.

iPad with Retina Display

It was already superb.
Now it's just incredible.

Wifi or Cellular?

The basic iPad gets on the internet via wifi. The Cellular model can also take a mobile phone SIM. It's £100 extra, so think about how often you'll need it – especially if you have an iPhone contract that allows Personal Hotspot ('tethering'), which can host the iPad. The Cellular model's LTE chip in the 4th gen and iPad mini supports EE's 4G network, but not the others due to launch in the UK in 2013; it'll still give you top speeds on 3G

Calls and messaging

You can make FaceTime calls – video or just audio – to other iOS and Mac users (via wifi or 3G) and contact them using Apple's iMessage. You can't make voice calls over the cell network, or use texts (SMS)

Screen

The 9.7in display is the finest ever made

Cameras

The 4th generation iPad's iSight camera, the one on the back, is a decent 5 megapixel unit. A tablet makes an unwieldy camera, but shooting stills or 1080p video and editing them on a big screen on the same device is pretty good fun. The FaceTime HD camera on the front delivers a clear 720p

Connectivity

The iPad has no USB or memory card slot, so it can be tricky getting photos and other data on and off – although iCloud helps. Lightning adaptors are available for USB and SD memory cards

Battery life

All iPads last about ten hours on a charge

iPad 2

Is it worth buying?

With a pretty rubbish camera, a quarter of the Retina model's screen resolution and no Siri support, the iPad 2 is available in 16GB only, at £70 less

than the new full-size iPad. Buying an iPad mini for £60 less could make more sense, and remember the 4th gen has more than enough improvements to justify its price tag.

Configurations

iPad with Retina display

Wi-Fi 16GB £399	Cellular 16GB £499
Wi-Fi 32GB £479	Cellular 32GB £579
Wi-Fi 64GB £559	Cellular 64GB £659

iPad 2 16GB **Wi-Fi** £329 **Cellular** £429

iPad mini

Wi-Fi 16GB £269	Cellular 16GB £369
Wi-Fi 32GB £349	Cellular 32GB £449
Wi-Fi 64GB £429	Cellular 64GB £529

 [Buy now](#)

Reviewed Vol 28 No 24

Last update October 2012

Expected Spring/summer 2013

➤ Lightning

Replacing the iPad 2's 30-pin Dock, the Lightning connector on the 4th gen and mini is neater, but old accessories will need adaptors. 30-pin, USB, SD card, HDMI and VGA adaptors cost £15 to £39 each from Apple

iPad mini shown actual size

4th gen with A6X and Lightning port

iPad mini

Concentrated, not reduced, as Jonathan Ive puts it. A 7.9in iPad 2, but with 4th generation features like Lightning and new cameras. So practical.

↓ Smart Cover/Case

Apple's fold-up front and all-around cases (the latter only for full-size iPads) are clever, but there are lots of others to choose from



Mac



↓ Magic Mouse

The surface of Apple's latest mouse is a multi-touch pad. Slide or flick one finger across it to scroll within apps; swipe two fingers left or right to move forward and back – for example, between web pages in Safari. The left and right buttons are invisible, but click when pressed. You may need to go to System Preferences > Mouse, tick Secondary Click and choose Right to activate the right button

Keyboard and mouse

Apple's wireless keyboard and Magic Mouse are included with all Macs except the Mac mini. If you want a wired keyboard with a numeric keypad, opt for this when ordering. You can swap the mouse for a MagicTrackpad at the same price, enabling more gestures.



AppleCare

Macs come with 90 days' free phone support and a one-year warranty. The optional AppleCare Protection Plan extends these to three years. It doesn't include accidental damage, and most faults are already covered by your Sale of Goods Act rights, but it offers more repair options (including on site for desktop Macs) and tech support. It's transferrable if you sell your Mac

↗ Magic Trackpad

Apple doesn't believe in desktop touchscreens. Reaching out to tap and swipe a vertical display feels so unnatural that users of touchscreen PCs often report that they never use the facility. Instead, Macs have the option of the Magic Trackpad, which accepts similar gestures to those used on the iPad and other iOS devices while you look at the monitor. It takes a little bit of getting used to, but many Mac users are already converted

Mac mini

The cheapest Mac, but just as remarkable as the rest.

No built-in optical drive

If you want to install software or play movies from DVD, add the external SuperDrive (£65)



If you need more than the standard 4GB of RAM, order chips from a supplier such as crucial.com/uk to fit yourself – it's easy. 16GB is the quoted maximum, although more might be possible

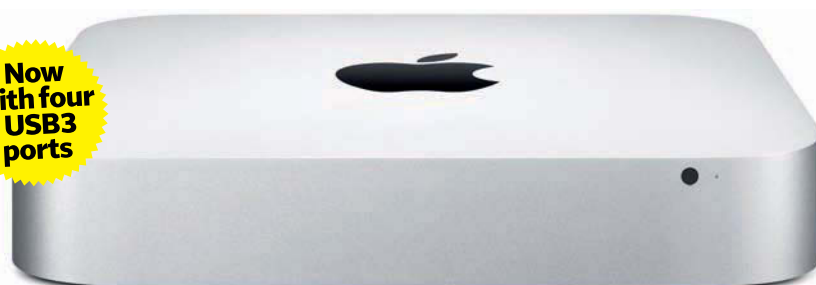
Graphics

All the Mac minis have enough graphics power for playing HD movies and modest 3D gaming, but there are no options for a dedicated graphics card comparable to the iMac's NVIDIA GPUs

Display

Add Apple's screen (opposite) or pick your own: the mini has both DisplayPort and HDMI outputs. It's the only desktop Mac with HDMI built in, aimed at users wanting to connect it to their living-room HDTV set

Now with four USB3 ports



Configurations

Mac mini 2.5GHz

£499

CPU 2.5GHz Dual-core

Intel Core i5

RAM 4GB

Hard disk 500GB (no options)

Graphics Intel HD Graphics 4000

BEST DEAL

Mac mini 2.3GHz

£679

CPU 2.3GHz Dual-core Intel

Core i7 (2.6GHz i7 +£80)

RAM 4GB

Hard disk 1TB (Fusion drive +£200, 256GB SSD +£240)

Graphics Intel HD Graphics 4000

Accessories

Do more with your Mac



↑ **AirPort Extreme** £139
802.11n wifi router to connect all your Macs and other devices to your ADSL modem or cable modem for internet access. Includes USB 2 port to share a printer or external hard drive



↑ **Time Capsule** £249/£399
Similar to AirPort Extreme, but with a 2TB or 3TB hard disk built in to back up your Mac(s) via wifi



← **AirPort Express** £79
Connect a USB printer to

wifi, stream audio wirelessly from Mac or iOS to a hifi, extend your wifi network, or quickly share a wired connection when away.

Apple 27in Display

A superb 27in monitor based on an IPS panel with LED backlighting. Available with DisplayPort interface (Cinema Display) or with Thunderbolt for the latest Macs. £899



Mac mini with OS X Server

£849

CPU 2.3GHz Quad-core Intel Core i7 (2.6GHz i7 +£80)

RAM 4GB

Hard disk 2 × 1TB (256GB SSD +£160, 2 × 256GB SSD +£480)

Graphics Intel HD Graphics 4000
Supplied with OS X Server licensed for unlimited clients

Keyboard and mouse Not included

Buy now

Reviewed Vol 28 No 25
Last update October 2012
Expected Autumn 2013



iMac

With the computer built into the screen, finished entirely in glass and aluminium, it's now incredibly slim as well as powerful

Configurations

iMac 21.5-inch 2.7GHz

£1,099

CPU 2.7GHz Quad-core i5

Display 1920 × 1080 16:9

RAM 8GB (16GB £160)

Hard disk 1TB 5400rpm

Graphics NVIDIA GeForce GT 640M with 512MB video RAM

iMac 21.5-inch 2.9GHz

£1,249

CPU 2.9GHz Quad-core i5 (3.1GHz i7 £160)

RAM 8GB (16GB £160)

Hard disk 1TB 5400rpm (1TB Fusion Drive £200)

Graphics NVIDIA GeForce GT 650M with 512MB video RAM

Buy now

Reviewed Vol 29 No 1
Last update November 2012
Expected Autumn 2013

iMac 27-inch 2.9GHz

£1,499

CPU 2.9GHz Quad-core Intel Core i5

Display 2560 × 1440 16:9

RAM 8GB (maximum 32GB)

Hard disk 1TB 7200rpm (3TB £120, 1TB Fusion Drive £200, 3TB Fusion £320, 768GB SSD £1,040)

Graphics NVIDIA GeForce GT 660M with 512MB video RAM

iMac 27-inch 3.2GHz

£1,699

CPU 3.2GHz Quad-core Intel Core i5 (3.4GHz i7 £160)

RAM 8GB (maximum 32GB)

Hard disk 1TB 7200rpm (3TB £120, 1TB Fusion Drive £200, 3TB Fusion £320, 768GB SSD £1,040)

Graphics NVIDIA GeForce GTX 675MX with 1GB video RAM (GeForce GTX 680MX with 2GB video RAM £120)

Keyboard and mouse Included



The 21.5in iMac contains RAM modules that in theory could be swapped, but in practice it's not rated user-upgradable because getting into the case would be a nightmare even for an engineer. If you may need more than 8GB RAM (the maximum is 16GB) you must opt for it at the time of ordering, at Apple's ridiculous price of £160. The 27in iMac has a hatch making RAM upgrades easy; don't even look at Apple's prices, but order 32GB from a memory dealer for around £120 to get the very best performance out of your iMac with demanding creative apps



Mac Pro

Fully expandable for high-end users.

Configurations

Mac Pro Quad-core

£2,049
CPU 3.2GHz Quad-core Intel Xeon W3565
RAM 6GB (4 × 2GB modules)
Hard disk 1TB
Graphics ATI Radeon HD 5770 with 1GB video RAM

Mac Pro Server

£2,449
CPU 3.2GHz Quad-core Intel Xeon
RAM 8GB (4 × 2GB modules)
Hard disk 2 × 1TB
Graphics ATI Radeon HD 5770 with 1GB video RAM
Supplied with OS X Server licensed for unlimited clients

Optical drive bays

One 18x DVD±R DL/DVD±RW/CD-RW SuperDrive is standard, with a second bay free for another if you choose to add it

Ports

This is the only Apple machine with ports on the front, and they're still rather sparse. In total you get four FireWire 800, five USB 2 (plus two on the wired keyboard) and two gigabit Ethernet, plus analogue and TOSLINK audio in/out, as well as 802.11n wifi and Bluetooth 2.1

Accessories

The Mac Pro has a number of accessories available, including the Mac Pro Studio Display and the Mac Pro Keyboard.

Expansion slots

The Mac Pro has a processor and RAM slide out on a tray for unobstructed access. Single-processor models can take up to 32GB of RAM, while the dual-processor design takes 64GB. Don't buy your extra RAM from Apple – the prices are crazy

Expansion slots

All four high-speed PCI Express 2.0 slots inside the chassis are retained by a simple bar. The graphics card slot is double-wide, so a large card won't obscure the next slot

Internal drive bays

No tangle of ribbon cables here. These four 3Gbit/sec SATA 3.5in bays slide in and out without wires, and can each take a conventional drive of up to 2TB or a 512GB SSD



The Mac Pro is a superb machine, but the case has barely changed in nine years and even the new processors are old. It's not great value, but it's the only Mac with top-end CPUs and internal expansion

Discontinued

Last update June 2012
Expected Autumn 2013

MacBook Pro

The ultimate combination of power and portability, beautifully engineered.

Configurations

MacBook Pro 13-inch 2.5GHz

£999
CPU 2.5GHz Dual-core Intel Core i5
Display 13.3in 1280 × 800 16:10
RAM 4GB (8GB +£80)
Hard disk 500GB (750GB +£80, 128GB SSD +£160, more options)
Graphics Intel HD Graphics 4000

MacBook Pro 13-inch 2.9GHz

£1,249
CPU 2.9GHz Dual-core Intel Core i7
Display 13.3in 1280 × 800 16:10
RAM 8GB
Hard disk 750GB (128GB SSD +£80, 256GB SSD +£320, more options)
Graphics Intel HD Graphics 4000

MacBook Pro 15-inch 2.3GHz

£1,499
CPU 2.3GHz Quad-core Intel Core i7
Display 15.4in 1440 × 900 16:10
1680 × 1050 +£80 or 1680 × 1050 with anti-glare +£80
RAM 4GB (8GB +£80)
Hard disk 500GB (750GB +£80, 128GB SSD +£160, more options)
Graphics NVIDIA GeForce 650M with 512MB video RAM

MacBook Pro 15-inch 2.6GHz

£1,799
CPU 2.6GHz Quad-core Intel Core i7 (2.7GHz i7 +£240)
Display 15.4in 1440 × 900 16:10
1680 × 1050 +£80 or 1680 × 1050 with anti-glare +£80
RAM 8GB
Hard disk 750GB (128GB SSD +£80, 512GB SSD +£720)
Graphics NVIDIA GeForce 650M with 1GB video RAM

MacBook Pro with Retina display 13-inch 2.5GHz

£1,249
CPU 2.5GHz Dual-core Intel Core i5
Display 13.3in Retina 2560 × 1600
RAM 8GB (no upgrade options)
SSD 128GB (256GB +£250)
Graphics Intel HD Graphics 4000
2.5GHz also available at £1,699

MacBook Pro with Retina display 15-inch 2.3GHz

£1,799
CPU 2.4GHz Quad-core Intel Core i7
Display 15.4in Retina 2880 × 1800
RAM 8GB (16GB +£160)
SSD 256GB
Graphics NVIDIA GeForce GT 650M with 1GB video RAM
2.6GHz also available at £2,299



RAM is upgradable later in all MacBook Pros except the Retina



Consider waiting

Last update February 2013
Expected Summer/autumn

Webcam

A FaceTime HD camera is built into the bezel at the top centre of the screen, as with the iMac

Keyboard

Backlit to make it easier to use in low light. The backlighting adjusts automatically according to ambient light

Trackpad

The Multi-Touch trackpad supports OS X Lion's gestures



Battery life All MacBook Pro models will last around seven hours on a charge, based on Apple's example of browsing the web via wifi. Without wifi, you could get even longer, but apps that work the processors harder will reduce battery life. Apple's MagSafe connector ensures you won't damage your laptop if you trip over the power cable while charging – the lead just pops out

Ports

The 13in and 15in MacBook Pro each have two USB 3 ports, one FireWire 800, one Thunderbolt and Gigabit Ethernet, as well as 802.11n wifi and Bluetooth 4.0, audio in/out and an SDXC Card reader. The MacBook Pro with Retina display has two USB 3 and two Thunderbolt ports, HDMI and SDXC, but needs an adaptor for Ethernet or FireWire

Optical drive

All Pros except the Retina have 8x SuperDrive (DVD±R DL/DVD±RW/CD-RW)

↓ Screen

Like all Apple displays, the MacBook Pros' screens have a high-gloss finish. This maximises contrast and sharpness, but reflections can be distracting. The 15in model has an optional higher-resolution screen (more pixels packed into the same area), which in turn has an anti-glare option, at extra cost. The 15in Retina display has a resolution of 2880 × 1800, the 13in 2560 × 1600

All MacBook Pros can also drive an external display at up to 2560 × 1600 via the Thunderbolt port. This can act as a Mini DisplayPort to connect to earlier Apple monitors, or connect to DVI or VGA with adaptors from Apple, or to HDMI with third-party adaptors



↑ Screen

Both screen sizes have a high dot pitch, packing in more pixels. The incredibly slim surround doesn't flex because it's made of aluminium, not plastic. A FaceTime camera (not HD) is built into the bezel

↑ Keyboard

The full-size keyboard is backlit to make it easier to use in low light – for example, when taking notes in a darkened auditorium

Battery life

The 11in Air will go for around five hours in general use with wifi on; the 13in will run for seven hours. Standby time is up to a month

↑ Trackpad

Very different from the average laptop pad, Apple's Multi-Touch trackpad is highly responsive – like an iPhone screen – and supports scroll, zoom and swipe gestures in OS X

Ports

All Airs have two USB 3 ports and one Thunderbolt. The 13in has an SD Card reader, too. Ethernet needs a £25 adaptor

Look out for news at WWDC

MacBook Air

Quite simply the most desirable portable computer ever manufactured.

Configurations

MacBook Air 11-inch 64GB

£849

CPU 1.7GHz Dual-core Intel Core i5

Display 11.6in 1366 × 768 16:9

RAM 4GB (8GB +£80) SSD 64GB

Graphics Intel HD Graphics 4000

BEST DEAL

MacBook Air 11-inch 128GB

£929

CPU 1.7GHz Dual-core Intel Core i5

Display 11.6in 1366 × 768 16:9

RAM 4GB (8GB +£80) SSD 128GB

Graphics Intel HD Graphics 4000

MacBook Air 13-inch 128GB

£999

CPU 1.8GHz Dual-core Intel Core i5

Display 13.3in 1440 × 900 16:9

RAM 4GB (8GB +£80) SSD 128GB

Graphics Intel HD Graphics 4000

MacBook Air 13-inch 256GB

£1,249

CPU 1.8GHz Dual-core Intel Core i5

Display 13.3in 1440 × 900 16:9

RAM 4GB (8GB +£80) SSD 256GB

Graphics Intel HD Graphics 4000



Shoehorned into its slim case, none of the Air's components is upgradable later, even RAM. 4GB is usable, but consider paying extra for more rather than regretting it later. There's no built-in DVD drive, and a flash memory SSD takes the place of a hard disk; Thunderbolt allows fast external storage too



Consider waiting

Last update June 2012

Expected Summer 2013



11-inch Air shown actual size



iOS

iPod touch

With the same screen as the iPhone 5, the touch is a multi-purpose computer and game console that's also excellent for music and movies.

A5 processor

With the same CPU/GPU chip as the iPhone 4S and iPad 2, the new iPod touch 5th generation is ready for demanding games

→ 5-megapixel camera

The new camera has the same resolution as the much-praised iPhone 4 but with some benefits added from the 4S and iPhone 5

Configurations

iPod touch 5th generation 32GB	£249	    
iPod touch 5th generation 64GB	£329	    
iPod touch 4th generation 16GB	£169	 



The 4th gen touch, with 3.5in Retina display, is good value, though its slower processor may limit a few new games

iPad

For the iPad, turn back to the beginning of this guide



Buy now

Reviewed Upcoming

Last updated Oct 2012

Expected Autumn 2013

Because they're all based on the same Apple operating system, iOS, the iPod touch, iPhone and iPad can all run the same apps. Hundreds of thousands are available, covering a vast range of purposes, and because they only come from the App Store, which is managed by Apple, you never have to worry about getting a virus or running a dodgy program that messes up your system.

The iPhone 4 and 4S and the iPod touch 4th generation have a 3.5in Retina display with four times as many pixels as their predecessors, though the iPod's screen isn't of quite such a high quality. The iPhone 5 and iPod touch 5th generation share exactly the same larger Retina display. The iPad 3rd generation similarly doubles the iPad 2's resolution.

Old apps that haven't been updated for Retina run 'pixel doubled' on newer devices, while iPhone apps without an iPad (or 'HD') version run either at their intended pixel size, in the middle of the screen, or doubled in size. Apps that haven't been redesigned for the iPhone 5 display run at their original size, leaving black bars above and below.

Retina iPhone apps won't run on the iPad or iPad 2 at full resolution, even though the iPad has more pixels, but will on the iPad 3rd generation. Apps made just for iPad won't run on other iOS devices.



← Loop

The iPod touch comes with a matching wrist strap as well as EarPods

iPod classic

It doesn't run iOS, but the old-school hard disk iPod gives you an enormous amount of room for music and video

→ Click Wheel

No touchscreen here; slide your finger around the dial to pick options



Configurations

iPod classic 160GB £199  



Update overdue

Storage

Like the original iPod (though it's been updated several times), the classic uses a hard disk to provide much greater capacity than the flash memory in every other iOS device. That makes it practical to carry plenty of movies and TV shows as well as music – it'll take up to 200 hours of video, or 40,000 songs



Apple TV

Rent or buy movies from iTunes on your HDTV or wirelessly stream apps, games, videos and photos from iOS or Mac to the big screen via AirPlay. £99

iPhone 5

With its stretched Retina display and metal back, the iPhone 5 has a new feel as well as an enhanced 8-megapixel camera and a faster processor chip.



iPhone 5 shown actual size

↑ 8-megapixel camera

The resolution stays the same from the 4S, but this is a new camera with better low-light shooting and a scratch-proof sapphire crystal lens cover. The FaceTime camera on the front has been upgraded to 720p HD

↗ Siri

Only the iPhone 5, iPhone 4S and iPad 3rd generation support Siri, Apple's built-in voice recognition system

Buy now

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iPhone 4S

There's little the 4S can't do compared to the 5, so you could pay less by sacrificing the big screen. You still get a Retina display, an 8-megapixel camera and Siri.

iPhone 4

With a fine but less impressive 5-megapixel camera and no Siri, the iPhone 4 is a cheaper option.

Configurations

iPhone 5 16GB £529

iPhone 5 32GB £599

iPhone 5 64GB £699

iPhone 4S 16GB £449

iPhone 4 8GB £319

All iPhones ■ Black □ White



The prices shown here are to buy an iPhone direct from Apple which is not locked to any network. You can then shop around for pay-as-you-go or pay-monthly tariffs. Buying an iPhone on contract will cost less initially, but you must keep the contract for 18 months or two years. An iPhone 4 or 4S or a non-CDMA iPhone 5 sold in the US will work in the UK, but check it has been or can be unlocked from its original network. The iPhone 4 and 4S require a micro-SIM, the iPhone 5 a nano-SIM.

iPod nano

Tiniest touchscreen handles music, video, photos and fitness



Configurations

iPod nano 16GB £129

iPod shuffle 2GB £40

Buy now

← Multi-purpose mini

The 77x40mm 7th generation nano comes with EarPods and plays music, video and photos. With no wifi connection, all content has to be synced from a Mac or PC. The nano also includes Nike+, VoiceOver, and an FM radio with pause

↓ EarPods

Improved audio, with inline mic



iPod shuffle shown actual size

iPod shuffle

Apple's musical postage stamp keeps things simple



iPod nano and shuffle

■ ■ ■ ■ ■

Battery life

The shuffle lasts up to 15 hours, the nano 24

Buy now

Voice control

With no screen, you navigate using the clicker while the shuffle speaks options and tells you what track you're on. You can sync playlists from iTunes, let Genius select songs or play a random shuffle. Apple Earphones, not EarPods, are supplied

SUPPORT, SALES AND SERVICES

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We talk to SupportPlan about how cloud computing will revolutionise business

'CLOUD COMPUTING IS about moving more of your data, applications and processes to a secure, robust data centre server with more redundancy than you could afford to build in your own office,' explains Lance Beechen, one of SupportPlan's directors.

Switching to the cloud enables you to access your data and desktop from anywhere in the world, and avoid spending time and money installing and maintaining complex hardware and applications.

Further, it means you can outsource the maintenance and burden of servers and applications, as well as take advantage of more resilient internet connections using power from different grids, backed up by diesel generators at secure offsite locations.

And because all of your data is stored in the cloud, you no longer have to worry about what to do in the event of a fire or theft, as all data will be saved and can be accessed remotely.

The cloud also makes backups a no-brainer: gone are the days of backing up your data in house with tapes, with the inherent risk of forgetting to swap out the tapes and take them offsite. Now you can have regular backups conducted remotely, backing up every few seconds for real peace of mind.

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The company's customers range from small, owner-managed design studios to large corporates that require cross-platform support. It prides itself on its commitment to its customers. As Beechen explains: 'We come highly recommended. You only have to look at our website (supportplan.com) to see some of the comments made by a very impressive customer portfolio.' ☺



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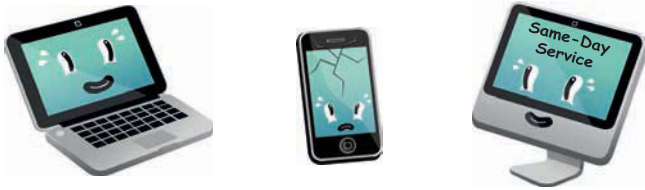
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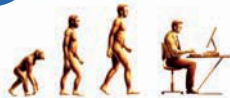


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Inbox

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From **Nick Firth** @nicomonkeyboy

Lord Lawson shows considerable financial prudence by not updating his Mac in 10 years.

Indeed he does, not to mention impeccable taste. We imagine him tutting at the Today programme playing through those Apple Pro Speakers.

For those of us who remember Lord Lawson as chancellor, it's a sobering thought that when this now long defunct Mac was launched, he'd been in the upper house a decade, having left the cabinet 13 years earlier.

It's not actually clear whether this BBC footage is current or a file clip (isn't he a bit skinnier these days?), but there are plenty of G4s still going strong. No slouch in its day, a top-of-

the-range 'iLamp' had about the same processing power as an iPhone 4S.

Trivia fans will note that John Diamond, the late husband of Lord Lawson's daughter Nigella, was a regular MacUser contributor. It's a small world, eh readers?

And talking of daughters...



From **Paul Dear**

My daughter recently took her MacBook to the local Apple Store to have a dead hard disk replaced. All fine and dandy, but she had to agree that the store could retain her faulty drive.

I queried this, and was told rather curtly that no, they could not undertake the repair unless they kept the faulty unit, which would be returned to Apple for diagnosis and possible refurbish-

ment. Yet this hard drive contained a wealth of personal information, emails, photographs... Not only was all of this data potentially still accessible, but by retaining the drive they also denied my daughter any chance of having data recovered by a third party.

Is this Apple policy? If so, I and perhaps many other users couldn't legally take our Macs in for drive replacement, since our jobs require us to keep data confidential.

What an effin' liberty. We've previously been asked – well, very firmly told – to return faulty components to Apple after receiving a replacement, so this does seem to be the rule. Playing devil's advocate for a moment, numerous devices might contain confidential data, such as a broken iPhone; could Apple realistically let users hang on to hundreds of pounds' worth of hardware, just in case? What you could certainly expect, though, would be for the Apple Store to recognise the issue and discuss your concerns. We asked Apple UK to clarify its policy, but got no reply before going to press.



From **Jason Walsh** @jwalshireland

Picked up @macusermagazine drawn in by the cover feature. Impressively fat.

From **John Coulthard** @ourmanincumbria

Apple may be poor at paying tax but now they've put the progress bar on iTunes MiniPlayer I can forgive them. Easy pleased.



Desk of the Month

Moelwyn Hopkins set the tone for this issue's selection with a study in neutrals and a subtle homage to a favourite publication. Nick Easton took it to the next level with his mica-flaked bespoke concrete worktop, and John Higgins brought us back down to earth. Each wins a Just Mobile AluBase. Send the best picture of your desk to the email address opposite and you could win a Just Mobile HeadStand, worth £39.95, to keep your headphones handy and untangled. Don't forget to include your postal address, so we know where to send your prize.



LAST WORD



KENNY HEMPILL has been at MacUser since the week Apple bought NeXT and Steve Jobs returned to the company.

Evolutionary theory

*Investors love software,
so Apple must change*

SPRING IS REVOLUTION season. But it's evolution that's been in the air in Cupertino. Not the kind of evolution that involves faster processors, higher-resolution screens, or better battery life, however. This is about nothing less than the identity of the company itself.

Under Steve Jobs, there was no doubt about what kind of company Apple was. It was a hardware firm. Its software and services existed as a means to persuade more people to buy its Macs and mobile devices and to ensure that those who already had done bought more. It made iMovie as a way to sell the iMac DV. Final Cut Pro was a response to Adobe's decision to stop developing Premiere for the Mac. It bought Logic and made GarageBand because it could see software for making music on the Mac was lagging behind that on Windows. And DVD Studio Pro and iDVD were an exercise in showcasing the SuperDrive.

Any doubt about Apple's (lack of) commitment to the software side of its business can be dispelled with a quick glance at the current update schedules of its apps. When was the last time Aperture was updated? iWork? As hardware sales took on a life of their own, so Apple became less interested in software.

Then things began to change. Hardware sales slowed. Gross margins shrank. And there are signs that Apple feels it's time to move on from being just a hardware company.

The Wall Street Journal reported in April that '[CEO] Tim Cook has been lobbying Wall Street to change its hardware-centric views'. Cook actually said the words 'We're not a hardware company'. He wants investors to view Apple as more than that. The last Apple CEO to try that was Gil Amelio, who once explained that Apple's future was in something called 'middleware'. It didn't work out well for Gil, and it nearly worked out very badly for Apple, until the hardware-focused Jobs returned.

So what's Cook up to? Well, it turns out that investors like software and services more than they like hardware. At its most basic, most of us replace hardware once every few years, but we upgrade software and renew services annually. Thus revenue from software is more frequent and reliable than that from hardware. This can be demonstrated by looking at the way Wall Street values firms as a factor of their future earnings. Apple's current valuation (which may have changed by the time you read this, given the way its share price has fluctuated recently)

puts it at around 8.5 times its projected future earnings. Dell, which sells PCs and not software, is trading at about the same price/earnings ratio, and HP is even lower at around 5.6. By contrast, EMC, which bought Iomega but, thanks to its data security software and services, is viewed as a hybrid company, trades at 11.4x. And Comcast, the US cable company, which is a pure services company, has a price/earnings ratio of 16.4.

The perception in financial markets is simply that software and services are a better bet than hardware. Hence Cook's desire to have Wall Street view Apple differently. Telling investors you're a hybrid company, however, no matter how many times you do it, isn't particularly persuasive. So we can expect to see Apple making a point of raising a greater portion of its revenue selling annually renewed services over the next few years.

What might those be? It already has iCloud and iTunes Match, both of which operate on subscription. It could conceivably switch its apps to a subscription model in the same way Adobe has done with Creative Cloud, but the infrequency of recent updates would make that a tough sell. The trade-off for paying a subscription for software is that you get the latest versions at no additional cost. If newer versions never appear or have long gaps between them, that trade-off is less attractive.

MORE LIKELY IS the introduction of new services, paid for by subscription or through other means. The much-discussed upcoming internet radio service, for example, is expected to be either a subscription service or free to use and paid for through advertising, depending on who you believe.

Likewise, whatever Apple has up its sleeve with regards to television (and it has *something*, even if it's not a TV screen) could involve subscribing to content. There's also the possibility that the company will eventually decide that a database with hundreds of millions of sets of credit card details in it is too good an opportunity to ignore, and roll out a payment processing service that uses iTunes at the back end, charging retailers a percentage per transaction.

While those are the changes that would affect us as customers the most, there's another way in which Apple is changing as a corporation. It was demonstrated by the acquisition of \$100m worth of AAPL by Russian oligarch and major Arsenal FC shareholder Alisher Usmanov in April. While major Facebook investor Usmanov saw Apple's recent share price decline as an opportunity, that wasn't the main reason for his investment. 'For the next three years, I believe Apple is a very promising investment, especially given large dividend payments and buybacks,' he told Bloomberg. To Usmanov and others like him, Apple is regarded not as the growth stock it was for a decade, but as a mature, income-generating investment.

The days of exponential growth and rocket-fuelled hardware sales are behind Apple now. Evolution is in the air – and, somewhere, Gil Amelio is still trying to explain that this is what he meant all along. ■

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